

A REVISION OF THE FAMILY TETHINIDAE (DIPTERA) FROM THE CARIBBEAN, GULF OF MEXICO, AND BERMUDA

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Abstract.—Beach flies (Diptera: Tethinidae) of the Caribbean, Gulf of Mexico, and Bermuda are revised. The beach-fly fauna of this area comprises three genera (*Dasyrhicnoessa*, *Pelomyiella*, and *Tethina*) and 12 species, including the following new species (type locality in parenthesis): *Tethina albitarsa* (ECUADOR. Manabi: Bahia), *T. cohiba* (GRAND CAYMAN. George Town Harbour (19°18'N, 81°22.9'W)), *T. lisae* (JAMAICA. Clarendon: Jackson Bay (17°44.7'N, 77°12.6'W)). Five **new synonyms** are proposed (junior synonyms cited first): *Tethina chilensis* Malloch = *Rhicnoessa texana* Malloch, *Tethina carioca* Prado and Tavares and *Rhicnoessa variseta* Melander = *Rhicnoessa willistoni* Melander, *Tethina brasiliensis* Prado and Tavares and *Rhicnoessa seriata* Melander = *Tethina xanthopoda* Williston. *Dasyrhicnoessa lasiophthamma* was probably introduced into the region. The remaining species tend to be widespread and frequently are locally abundant. These factors have contributed in part to some species being described multiple times.

Key Words: Revision, Diptera, Tethinidae, *Dasyrhicnoessa*, *Pelomyiella*, *Tethina*, Caribbean, Gulf of Mexico, Bermuda

The Caribbean species of the dipterous family Tethinidae have never been treated comprehensively even though they are abundant and relatively diverse on beaches within the region. This deficiency is not uncommon, however, and characterizes most insect families occurring there, especially groups that have relatively few species, that are collected infrequently despite being common locally, and that have no species of known economic importance. Although the Tethinidae lack pestiferous species, study of the family is warranted, as the species comprise an important component of the beach fauna. Beyond satisfying the immediate objective—a taxonomic revision of the Caribbean fauna—we are also seeking to discover and contribute toward other aspects of their natural history, such as their

distribution, historical biogeography, ecology, behavior, and biodiversity. The underlying basis for all of these studies is the taxonomy of the included taxa. In this same series on Caribbean acalyprate Diptera of marine and freshwater beaches and shorelines, a faunistic revision has been published on the Canacidae (Mathis 1989), and another for the family Ephydriidae is in progress. Beyond this faunistic study, we also have a comprehensive phylogenetic study in progress for both the Tethinidae and Canacidae that will hopefully clarify the relationships of these two families.

The historical record concerning Tethinidae in the Caribbean began slightly more than a century ago when S. W. Williston (1896) described two species (*Anthomyza cinerea* (= *Tethina willistoni* (Melander)

and *Rhinoessa xanthopoda*) from specimens collected on the island of St. Vincent. During the intervening 100 years, several other species have been reported from the Caribbean (Melander 1952, Mathis and Munari 1995), and herein we revise 12 species in three genera that occur in the Caribbean, Gulf of Mexico, and on Bermuda. Because many species of Tethinidae are widespread, especially those that occur in coastal marine habitats, we have examined most New World species, including primary types, to determine the correct identifications and valid names for the included species.

The impetus for this project initially resulted from field work on the Diptera of mangroves, sometimes called the mangal (Tomlinson 1986), that are associated with Belizean cays, especially those within the Stann Creek District. With funding from the Caribbean Coral Reef Ecosystems Program (CCRE), field work has been conducted on the mangrove habitats of Twin Cays, with reconnaissance work on several of the nearby cays as well. On seven field trips to these cays (1984–1993), we have made particular effort to collect specimens of the family Tethinidae. From our beginnings in Belize, we extended our field work to most of the major islands of the West Indies and elsewhere in the Caribbean, Gulf of Mexico, and on Bermuda as follows: Antigua (1989), Barbados (1996, 1997), Bermuda (1991), Cuba (1983, 1994), Dominica (1989, 1991), Dominican Republic (1995), Grand Cayman (1994), Grenada (1996, 1997), Jamaica (1996), Mexico (1985), Puerto Rico (1995), St. Lucia (1991), St. Vincent (1989, 1991, 1997), Trinidad (1993) and Tobago (1993, 1994), and the United States (Florida, 1989). In addition, Warren Steiner and W. W. Wirth made special efforts to collect Tethinidae on visits to Anguilla, Antigua, Curaçao, Dominica, Jamaica, and Puerto Rico, and Norman E. Woodley collected on Bermuda. These specimens were graciously made available to our study.

Methods.—The descriptive terminology, with the exceptions noted in Mathis and Munari (1996), follows that published in the *Manual of Nearctic Diptera* (McAlpine 1981). Because specimens are small, usually less than 4 mm in length, study and illustration of the male terminalia required use of dissecting and compound microscopes. We have followed the terminology for most structures of the male terminalia that other workers in Tethinidae have used (see references in Mathis and Munari 1996). The terminology for structures of the male terminalia is labeled on Figs. 4, 8, 9 and is not repeated on comparable illustrations of other species. The descriptions of new species are based primarily on their respective holotypes with variation being accounted for in the remarks section.

States of Mexico are abbreviated as follows: Baja California Norte (BCN), Chiapas (CHI), Quintana Roo (QNR), Tabasco (TAB), Yucatan (YUC).

KEY TO GENERA OF TETHINIDAE FROM BERMUDA, THE CARIBBEAN, AND GULF OF MEXICO

1. Gena with scattered setulae; peristoma bearing row of weak setulae; frons bare or with a few weak and scattered setulae. Cell bm and discal cell confluent, crossvein bm absent. Prescutellar acrostichal setae absent; scutum smooth, at most with a few scattered setulae; postpronotum with 1 or 2 setae, lacking a ventral seta that is dorsoclinate (Pelomyiinae)
 *Pelomyiella* Hendel 1934
- Gena bare; peristoma bearing row of strong, dorsally curved setae; frons with 2 rows of interfrontal setulae, often seta-like. Cell bm and discal cell distinct. Crossvein bm present. Prescutellar acrostichal setae present; scutum bearing numerous rows of coarse setae arising from punctures; postpronotum with 3 or more setae, the ventral seta dorsoclinate (Tethininae) 2
2. Eyes densely though minutely setulose. A true vibrissal seta present on vibrissal angle (lacking shiny tubercle above the foremost strong peristomal seta). Male with an anterior surstylarlike lobe in addition to true surstylus, which is fused to epandrium in some species
 *Dasyrhinoessa* Hendel 1934
- Eye bare or sparsely setulose. A true vibrissal seta absent but foremost peristomal setae in-

clinate and simulating vibrissae (the bare vibrissal angle a shiny tubercle above each false vibrissae). Male lacking a surstylarlike lobe but with a true surstylus usually positioned ventrad of epandrium and articulating with it

..... *Tethina* Haliday 1837

SUBFAMILY PELOMYIINAE

Genus *Pelomyiella* Hendel

Pelomyiella Hendel 1934: 39. Type species: *Pelomyia hungarica* Czerny, original designation.—Curran 1934: 331 [key].—Melander 1952: 196 [revision Nearctic species].—Vockeroth 1965: 727 [Nearctic catalog].—Soós 1984: 167 [Palearctic catalog].—Mathis and Munari 1996: 10–11 [world catalog].

Diagnosis.—*Pelomyiella* is distinguished from other genera of the family by the following combination of characters:

Head: Head higher than long; frons bearing some setulae in addition to larger setae; fronto-orbital and orbital setae usually with similar orientation, mostly reclinate or laterocline; fronto-orbital setae 2 (anterior seta in *P. mallochii* very short and weak, sometimes difficult to see); paraverticilar setae more or less convergent. Face vertical, not produced; face and peristoma microtomentose, without shiny stripes. Eye round, appearing bare, setulae very sparse or lacking. Gena high, more than half eye height; gena bearing few to many scattered setulae between eye and ventral row of setulae. Palpus and proboscis usually normally developed; clypeus small, if exposed not protruding anteriorly beyond oral margin.

Thorax: Scutum with numerous rows of coarse setulae arising from punctures; scutellar disc bare; postpronotum with 3 or more setae, ventral seta curved upward; acrostichal setulae lacking; prescutellar acrostichal setae present. Wing with costa not spinose; vein $A_1 + CuA_2$ short, much shorter than discal cell; wing usually shorter, about twice as long as wide (less often 2.5 to 3 times); cell bm and discal cell distinct. Mid and hind tibiae evenly setulose, lacking anterodorsal or posterodorsal setae.

Abdomen: Tergites wider than long; tergite 6 well differentiated from short syntergosternite 7+8 (long in *Horaismoptera* and some Apetaeninae), the latter forming a dorsal pregenital sclerite. Male terminalia: Epandrium extended ventrad as a ventral lobe; ventral lobe broadly fused with epandrium and situated ventrad of epandrium; surstylus greatly reduced, bearing some setulae, articulated with sternite 10, situated about level with cerci along posterior margin of epandrium; aedeagus long, sinuous, bearing dorsal pubescence.

Discussion.—Our study of *P. melanderi*, *P. mallochii*, and *P. maritima*, as differentiated in Melander's key (1952), reveals problems with their recognition as distinct species. Melander acknowledged that these species are very similar, stating specifically that *P. mallochii* and *P. melanderi* are “. . . closely allied,” and that the only differences between them are the size of the anterior fronto-orbital setae, the coloration of the genal setulae, and the coloration of the tibiae. Indeed, the only differences we have discovered between *P. maritima* and the other two so-called species seems to be the pallor of the body, including the legs and antennae and the length of the anterior fronto-orbital seta. Elsewhere in the Tethinidae (see discussion section under some *Tethina* species) we found that strength of setae and body coloration are usually unreliable characters, frequently demonstrating considerable variation, and that species based solely on these were unsupported by other characters. Moreover, we found that the structures of the male terminalia of the three *Pelomyiella* “species” appear to be essentially identical. We are thus of the opinion that these three taxa are probably conspecific and that there is variation in the external characters, especially color. Unfortunately the type series of *P. maritima* comprises females only, and we are hesitant to formally propose the synonymies that are indicated in our preliminary study.

KEY TO SPECIES OF *PELOMYIELLA* FROM
BERMUDA, THE CARIBBEAN, AND
GULF OF MEXICO

1. Body largely dark olivaceous grayish microtomentose; antenna mostly black; legs, including coxae, mostly or wholly black
 *P. mallochii* (Sturtevant)
 — Body pale yellowish to whitish gray, microtomentose; antenna mostly yellow; coxae and femora largely whitish gray, tibiae and tarsi mostly pale yellow *P. maritima* Melander

1. *Pelomyiella mallochii* (Sturtevant)

Pelomyia mallochii Sturtevant 1923: 7 [Massachusetts: Barnstable County, North Falmouth; HT ♀, AMNH].

Pelomyiella mallochii: Hendel 1934: 52 [key], 53 [generic combination, citation].—de Meijere 1939: 162 [citation].—Melander 1952: 196–197 [revision].—Collin 1960: 191 [citation].—Vockeroth 1965: 727 [Nearctic catalog]; 1987: 1076–1077 [figures of head and wing].—Cole 1969: 386 [distribution, diagnosis].—Bährmann 1982: 75–78 [ecology, citation, Germany].—Szadziewski 1983: 47–48 [citation, figures of ♂ terminalia].—Gorczytza 1988: 304, 307 [figure of habitus and head, citation, ecology].—Roháček 1992: 129 [biology, citation, Czech Republic and Slovakia].—Beschovski 1994: 18 [review, figures of ♂ terminalia].—Mathis and Munari 1996: 10 [world catalog].

Tethina parvula of authors, not Loew 1869 [misidentification].—Malloch 1913: 147 [generic combination, citation].—Melander 1913: 297 [key].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: Body largely dark olivaceous grayish microtomentose; anterior fronto-orbital seta much shorter than posterior seta; antenna largely yellow; setulae of gena pale; legs, including coxae, mostly pale yellow; tibiae usually brownish at apices.

Specimens examined.—Nearctic. UNIT-

ED STATES. *Texas. Galveston*: Galveston Island (25°10'N, 95°5'W), 14 May 1993, D. and W.N. Mathis (1 ♂, 2 ♀; USNM).

Distribution.—*Nearctic*: Canada (BC, MB, NT, SK), USA (AK, CA, CO, CT, ID, KS, MA, MD, ME, MI, MT, ND, NV, NY, OR, RI, SD, TX, UT, WA, WY). *Neotropical*: Mexico (BCN). *Palaearctic*: Austria, Bulgaria, Czech Republic, Denmark, England, France, Germany, Greenland, Hungary, Italy, Mongolia, Netherlands, Poland, Slovakia, Tibet, Yugoslavia.

Remarks.—This very widespread species is apparently Holarctic in distribution and occurs sympatrically with *P. maritima* along the coast of Texas. Unlike most species of Tethinidae, this species is found inland as well as along maritime coasts.

2. *Pelomyiella maritima* (Melander)
(Figs. 1, 2)

Tethina maritima Melander 1913: 297.

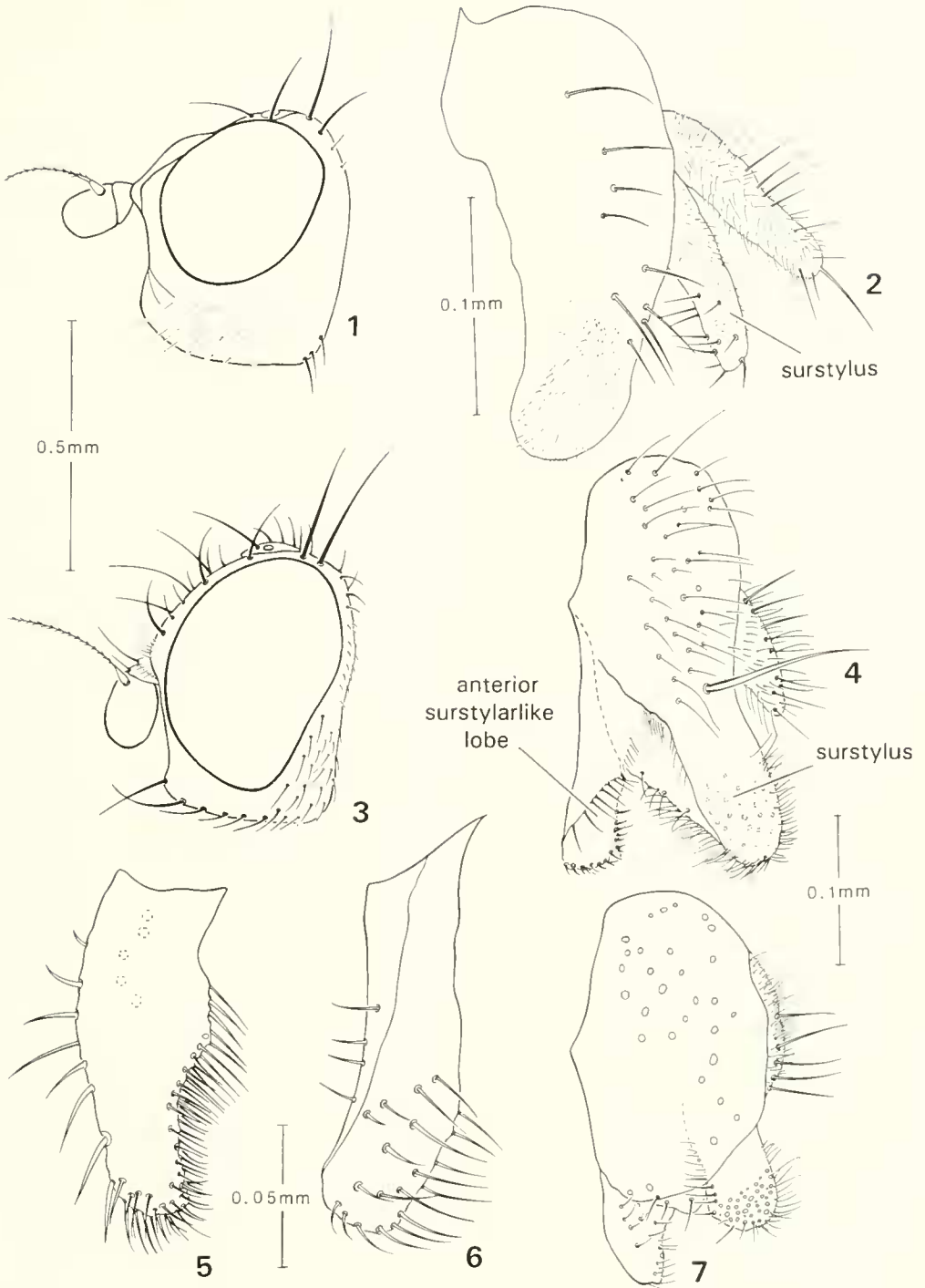
Pelomyia maritima: Sturtevant 1923: 7 [generic combination].

Pelomyiella maritima: Hendel 1934: 53 [generic combination].—Melander 1952: 197 [revision].—Vockeroth 1965: 727 [Nearctic catalog].—Mathis and Munari 1996: 11 [world catalog].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: Body pale, yellowish to whitish gray; antenna largely yellow; coxae and femora whitish gray, apical apex of femora, tibiae, and most tarsomeres yellow (apical two tarsomeres blackish brown).

Type material.—The syntype series of three ♀ is labeled “Galveston Jn 00 [Jun 1900] Tex[as]/ALMelander Collection 1991 [green stippling toward right side of label].” Each of the syntypes is double mounted (glued to a paper triangle or rectangle), is in fair condition (right side completely obscured by glue, several setae missing, one has the left wing missing), and is deposited in the USNM.

Distribution.—*Nearctic*: USA (MD, MS, TX).



Figs. 1-7. 1-2, *Pelomyiella maritima*. 1, Head, lateral view. 2, External male terminalia, lateral view (New Mexico, Dona Ana: Las Cruces). 3-5, *Dasyrhinoessa lasiophthalma* (Belize, Stan Creek: Tobacco Range). 3, Head, lateral view. 4, External male terminalia, lateral view. 5, Anterior surstylerlike lobe, posterior view. 6-7, *D. ferruginea* (Seychelles, Mahé: Anse Aux Pins). 6, Anterior surstylerlike lobe, posterior view. 7, External male terminalia, lateral view.

SUBFAMILY TETHININAE

Genus *Dasyrhicnoessa* Hendel

Dasyrhicnoessa Hendel 1934: 38. Type species: *Rhicnoessa fulva* Hendel, original designation.—Malloch 1935: 93 [discussion].—Sasakawa 1974: 2–5 [revision Oriental species].—Steyskal and Sasakawa 1977: 394 [Oriental catalog].—Hardy and Delfinado 1980: 370 [revision Hawaiian species].—Mathis and Munari 1996: 11–13 [world catalog].

Diagnosis.—*Dasyrhicnoessa* is distinguished from other genera of the family by the following combination of characters:

Head: Frons bearing some setulae in addition to larger setae; fronto-orbital and orbital setae usually with similar orientation, mostly reclinate or latero-clinate; fronto-orbital setae 3–4; paraverticilar setae more or less convergent. Face lacking shiny tubercle above vibrissal pore; vibrissal seta present on apex of vibrissal angle. Eye mostly densely covered with small, pale, interfacetal setulae. Gena bare except for a ventral or nearly ventral row of setulae; gena narrow, about $\frac{1}{8}$ – $\frac{1}{3}$ eye height. Palpus and proboscis usually normally developed; clypeus small, if exposed not protruding anteriorly beyond oral margin.

Thorax: Scutum with numerous rows of coarse setulae arising from punctures; scutellar disc bare; postpronotum with 3 or more setae, ventral seta curved upward; acrostichal setulae in two or more complete or nearly complete rows; prescutellar acrostichal setae present; scutellar disc bare except for marginal setae. Wing with costa not spinose; vein $A_1 + CuA_2$ short, much shorter than discal cell; wing usually short, about twice as long as wide (less often 2.5 to 3 times); cell bm and discal cell distinct. Mid and hind tibiae evenly setulose, lacking anterodorsal or posterodorsal setae.

Abdomen: Tergites wider than long; tergite 6 well differentiated from short syntergosternite 7+8, the latter forming a dorsal pregenital sclerite. Male terminalia: Epanthrium with a posterior (true) surstylus, ar-

ticulating with 10th sternite. In some species, articulating broadly with ventral margin of epanthrium, in others, reduced and positioned more dorsad, along posterior margin of epanthrium. Anterior process a surstylarlike lobe, not articulating with 10th sternite but only with anterior margin of epanthrium. This lobe much reduced in some species (absent in *D. platypes* Sasakawa) and positioned more or less medially along anterior margin of epanthrium. Aedeagus long, sinuous, ribbonlike.

Discussion.—Woodley and Hilburn (1994) and Mathis and Munari (1996) first recorded this genus from the New World (as *D. ferruginea* (Lamb)), and here we provide detailed locality data and descriptive documentation for the genus and the only known species that occurs there. We first discovered the genus and species on barrier islands off the coast of Belize and at the western margin of the Caribbean. Since then, we have found it in the United States (FL), Mexico (Tabasco), on the Lesser Antilles (Dominica, St. Lucia, St. Vincent), and Bermuda in the western North Atlantic. The genus was probably introduced through human commerce and is now widespread throughout the Caribbean Region and perhaps beyond. Elsewhere, the genus occurs primarily within the Pacific and Indian Ocean basins where 14 species have been described thus far (Mathis and Munari 1996).

Dasyrhicnoessa is distinctive and is easily distinguished, especially from other genera of the subfamily Tethininae, by the densely setulose eyes, prominent oral vibrissal seta, an anterior surstylarlike lobe, and a posterior (true) surstylus in males.

3. *Dasyrhicnoessa lasiophthalma*
(Malloch)
(Figs. 3–7)

Tethina lasiophthalma Malloch 1933: 17 [Marquesas. Hivaoa: Tahauku; HT ♂, BPBM].—Munari 1988: 48 [synonymy with *D. ferruginea* (Lamb), misidentification].

Dasyrhinoessa lasiophthalma: Sasakawa 1974: 2 [generic combination].—Steyskal and Sasakawa 1977: 394 [Oriental catalog].

Dasyrhinoessa ferruginea of authors, not Lamb [misidentification].—Munari 1986: 49 [discussion, Seychelles].—Woodley and Hilburn 1994: 53 [list, Bermuda].—Mathis and Munari 1996: 12 [world catalog].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: Thorax dark orangish brown; acrostichal setulae in 6 rows; legs yellow; forefemur bearing comb of closely set, peglike setae along distal half of anteroventral surface; midfemur bearing comb of setae on distal half of posteroventral surface; length of anterior surstylarlike lobe equal to or slightly shorter than surstylus (Fig. 4); anterior surstylarlike lobe somewhat kidney shaped (Fig. 5); surstylus bearing normal to slightly developed setae, none thickly developed.

Specimens examined.—Nearctic. BERMUDA. *Hamilton*: Shelly Bay (beach, 32°19'N, 64°44'W), 31 May 1991, W.N. Mathis (1 ♀; USNM). *Pembroke*: Admiralty House Park (seaweed on beach), 15 Nov 1987, D.J. Hilburn, N.E. Woodley (1 ♀; USNM). *St. George's*: Tucker's Town Bay (beach, 32°20'N, 64°41'W), 31 May 1991, N.E. Woodley (3 ♂, 1 ♀; USNM). UNITED STATES. *Florida. Monroe*: Big Pine Key (near Cactus Hammock), 1–2 May 1986, W.E. Steiner (1 ♀; USNM); Lower Matecumbe Key, 3 May 1986, D.S. Bogar, W.E. Steiner (1 ♀; USNM); Upper Key Largo, 1 May 1986, D.S. Bogar, W.E. Steiner (3 ♂, 1 ♀; USNM).

Neotropical. BAHAMAS. *Abaco Cays*: Allans Cay, 9 May 1953, E.B. Hayden (1 ♀; USNM). *New Providence Island*: Nassau, 16 Apr 1953, E.B. Hayden (2 ♀; USNM). South Bimini, May–Aug 1951, M. Cazier, W. Gertsch, C. and P. Vaurie (9 ♂, 16 ♀; USNM). BELIZE. *Stann Creek*: Carrie Bow, 4–22 Mar 1984, 1988, W.N. Math-

is (2 ♀; USNM); Glover's Reef, Long Cay, 27–28 Jul 1989, W.N. Mathis (1 ♀; USNM); Glover's Reef, Middle Cay, 28 Jul 1989, W.N. Mathis (3 ♀; USNM); Glover's Reef, Southwest Cay, 26 Jul 1989, H.B. Williams, W.N. Mathis (3 ♂, 1 ♀; USNM); Man of War Cay, 2 Jun 1985, W.N. Mathis (9 ♂, 7 ♀; USNM); Round Cay (near Coco Plum Cay), 23 Mar 1988, W.N. Mathis (1 ♂, 4 ♀; USNM); Tobacco Range, 30 Jul 1989, W.N. Mathis (16 ♂, 5 ♀; USNM); Twin Cays (Aanderaa Flats, E shore East Island, S end East Island, West Bay), 17–21 Mar 1988, W.N. Mathis (6 ♂, 4 ♀; USNM). MEXICO. *Tabasco*: Paraíso (5 km E), 6 May 1985, A. Freidberg, W.N. Mathis (3 ♂; USNM). West Indies. CUBA. *Havana*: Jibacoa Beach (57 km E Havana), 26 Apr 1983, W.N. Mathis (3 ♂, 2 ♀; USNM). *Matanzas*: Playa Larga, 1 May 1983, W.N. Mathis (1 ♂; USNM). DOMINICA. Cabrits, 22 Mar 1989, W.N. Mathis (1 ♂; USNM). ST. LUCIA. Soufrière (beach, 13°51'N, 61°04'W), 11–12 Jun 1991, D. and W.N. Mathis (7 ♂, 2 ♀; USNM). ST. VINCENT. *Charlotte*: Owia Salt Pond (13°22.5'N, 61°08.5'W), 29 Mar 1989, W.N. Mathis (6 ♂; USNM). *St. Andrew*: Buccament Bay (13°11'N, 61°16'W), 25–28 Mar 1989, W.N. Mathis (4 ♂, 2 ♀; USNM).

Distribution.—*Australasian/Oceanian*: Marquesas. Oriental: China (Hong Kong), Philippines. *Nearctic*: Bermuda, USA (FL). *Neotropical*: Bahamas (South Bimini), Belize, Mexico (TAB), West Indies (Cuba, Dominica, St. Lucia, St. Vincent).

Remarks.—This species was known previously only from the Pacific area, and its occurrence in the Caribbean, Gulf of Mexico, and on Bermuda represents a significant range extension.

Although only recently recorded from the study area (Woodley and Hilburn 1994, Mathis and Munari 1996), specimens from the Bahamas were collected in the early 1950's. These dates indicate that the species has been in the area, probably as an intro-

duction, for several decades before being reported.

Munari (1988) recently synonymized this name with *D. ferruginea* (Lamb), a species that was described from specimens collected on the Seychelles (Mahé). We also made direct comparisons with specimens collected on the Seychelles and found small but consistent differences (Figs. 4–7), especially in the shape of the anterior surstylarlike lobe, which in *D. ferruginea* is spatulate (Fig. 6), not kidney shaped (Fig. 5) with an indentation, and having the surstylus bearing many thickened, peglike setulae (Fig. 5). These comparisons, and the differences noted, lead us to doubt the conspecificity of these specimens, and we feel it best to consider the two taxa as distinct species. Our identification is based on direct comparison of type material from the Marquesas, characters of the male terminalia in particular, with specimens from Belize, St. Lucia, St. Vincent, and Bermuda.

Genus *Tethina* Haliday

Tethina Haliday, in Curtis 1837: 293 [published in synonymy; first made available by use in Haliday 1838: 188]. Type species: *Opomyza (Tethina) illota* Haliday 1838, subsequent monotypy (Haliday 1838: 188).—Becker 1905a: 234 [Palearctic catalog].—Malloch 1934: 453 [revision species of Chile, discussion, key].—Melander 1952: 199 [revision Nearctic species].—Foster 1976b: 2–3 [Neotropical catalog].—Thompson and Mathis 1980: 86 [citation, nomenclature].—Mathis and Munari 1996: 13–19 [world catalog].

Rhinoessa Loew 1862: 174. Type species: *Rhinoessa cinerea* Loew (= *Anthomyza grisea* Fallén), monotypy.—Loew 1865: 34–39 [revision].—Becker 1905b: 252 [Palearctic catalog].—Collin 1911: 234 [probable synonymy with *Tethina*].—Melander 1913: 298 [key to Nearctic species].—Hendel 1917: 46 [synonymy in key].—Curran 1934: 331 [key].—Melander 1952: 200 [revision Nearctic species].

Phycomyza Melander 1952: 198. Type species: *Rhinoessa milichioides* Melander, original designation.—Foster 1976a: 338 [synonymy].

Diagnosis.—*Tethina* is distinguished from other genera of the family by the following combination of characters:

Head: Frons bearing some setulae in addition to larger setae; fronto-orbital and orbital setae usually with similar orientation, mostly reclinate or latero-clinate; fronto-orbital setae 3–4; paraverticilar setae more or less convergent. Face with shiny tubercle above vibrissal pore present. Eye appearing bare, setulae very sparse or lacking. Gena bare except for a ventral or nearly ventral row of setulae; gena high in many species, height 0.5–0.75 that of eye height. Palpus and proboscis usually normally developed; clypeus small, if exposed not protruding anteriorly beyond oral margin.

Thorax: Scutum with more or less numerous rows of coarse setulae arising from punctures; scutellar disc bare; postpronotum with 3 or more setae, ventral seta curved upward; acrostichal setulae in two or more complete or nearly complete rows; prescutellar acrostichal setae present. Wing with costa not spinose; vein $A_1 + CuA_2$ short, much shorter than discal cell; wing usually shorter, about twice as long as wide (less often 2.5 to 3 times); cell bm and discal cell distinct. Mid and hind tibiae evenly setulose, lacking anterodorsal or posterodorsal setae.

Abdomen: Tergites wider than long; tergite 6 well differentiated from short syntergosternite 7+8, the latter forming a dorsal pregenital sclerite. Male terminalia: Surstylus positioned at ventral margin of epandrium, usually broadly articulated externally with epandrium, internally with 10th sternite; aedeagus usually very long and sinuous, either thick and straplike or narrow and ribbonlike; aedeagus micropubescent dorsally.

Discussion.—Among genera of Tethinidae, *Tethina* has by far the most species

worldwide, with almost half of the described species (62 of 132) currently recognized in the family (Mathis and Munari 1996). Nine species of *Tethina* are recorded from the study area, including three that are new.

KEY TO SPECIES OF *TETHINA* FROM
BERMUDA, THE CARIBBEAN, AND
GULF OF MEXICO

- 1. Gena high, at least 0.5 eye height 6
- Gena short, less than 0.5 eye height 2
- 2. Apex of scutellum with yellowish to reddish spot (may vary in size but always obvious) *T. xanthopoda* (Williston)
- Apex of scutellum uniformly gray microtomentose 3
- 3. Mid- and hindtibiae black on apical 1/3; first 3 tarsomeres white to pale yellow *T. albitarsa*, new species
- Mid- and hindtibiae all yellow 4
- 4. Hindfemora of ♂ not particularly swollen; surstylus armed with many short, well-developed, thick toothlike setulae *T. texana* (Melander)
- Hindfemora of ♂ distinctly swollen; surstylus not armed with toothlike setulae 5
- 5. Surstylus curved anteriorly, ending in an acute point, densely setulose with well-developed setae over most of surface *T. cohiba*, new species
- Surstylus paddle shaped, with well-developed setae along margin only *T. setulosa* Malloch
- 6. Body whitish 7
- Body distinctly gray to grayish brown *T. willistoni* (Melander)
- 7. Surstylus in lateral view curved anteriorly *T. albula* Loew
- Surstylus in lateral view straight 8
- 8. Surstylus in posterior view with median margin curved and rounded sparsely setulose *T. lisae*, new species
- Surstylus in posterior view with median margin straight, bearing dense row of setulae *T. bermudaensis* (Melander)

4. *Tethina albula* (Loew)
(Figs. 8–10, 13)

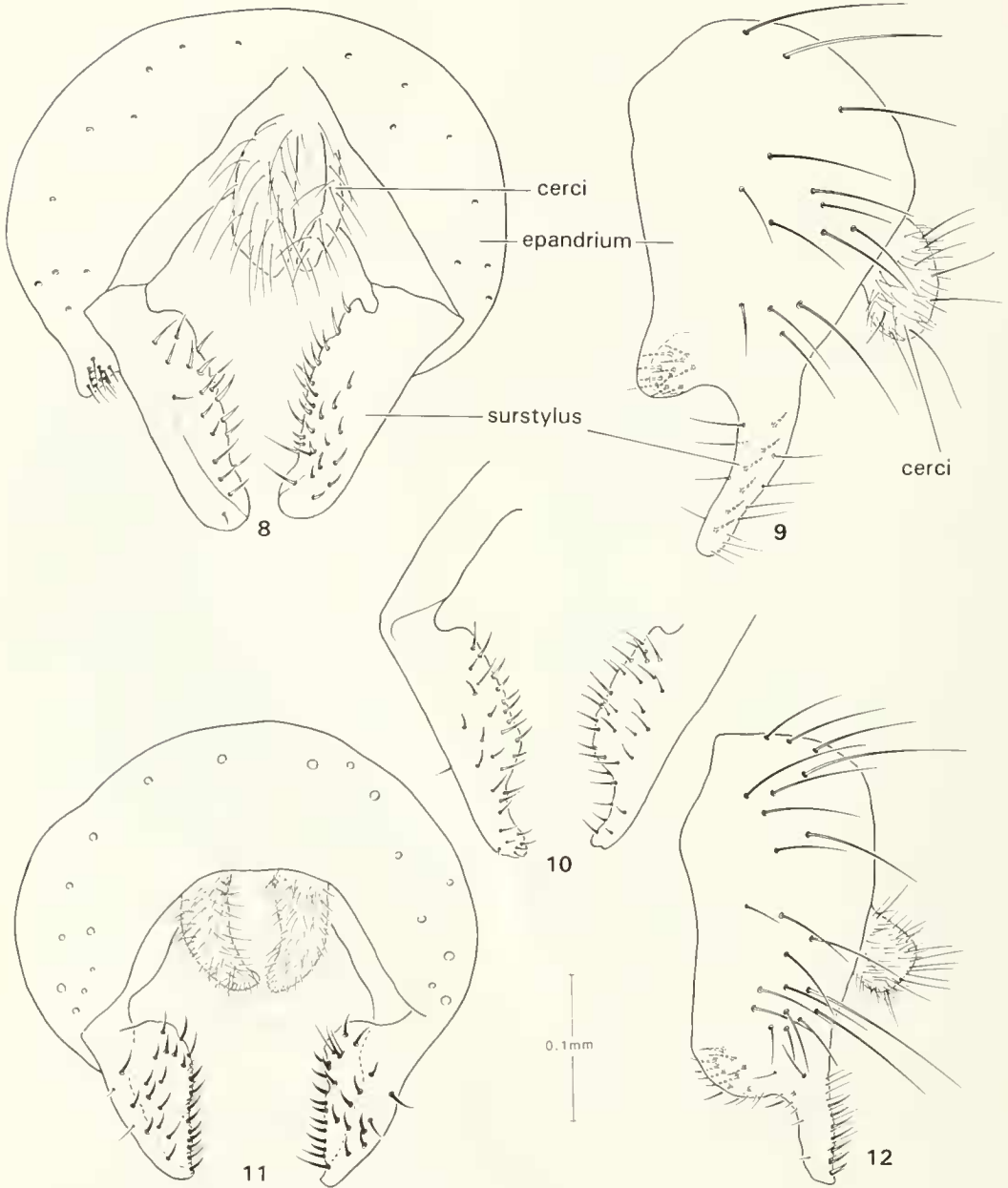
Rhinoessa albula Loew 1869: 44.—Malloch 1913: 147 [citation].—Melander 1913: 298 [key].—Hendel 1934: 43 [key], 46 [citation].—Hennig 1937: 140 [citation].—Melander 1952: 202 [citation].

Tethina albula: Curran 1934: 330 [generic

combination].—Vockeroth 1965: 727 [Nearctic catalog].—Prado and Tavares 1966: 431 [revision].—Foster 1976b: 2 [Neotropical catalog].—Mathis and Munari 1996: 14 [world catalog].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: Body length 1.60–3.15 mm; body with gray to whitish gray microtomentum; setae generally white to mostly black (Guyana specimens); gena high, greater than 0.5 eye height; 4 irregular rows of acrostichal setulae; scutellum uniformly gray, lacking a spot; femora mostly yellow to mostly gray; hindfemora of male similar to or only slightly more swollen than fore- and midfemora; tibiae yellow; basal 4 tarsomeres yellow, apical tarsomere brown; surstylus articulated with and broadly attached to epandrium, narrowly spatulate in posterior view (Figs. 8, 10), length 2.5× width, apex broadly rounded; median margin bearing irregular row of sparse setulae along entire length, setulae moderately well developed; surstylus in lateral view (Figs. 9, 10) narrow, height 3.5× width, gently curved anteriorly, basal portion produced anteriorly as a lateral lobe that bears a patch of setulae mesally; aedeagus thick, strap-like, bearing dense velvety hairlike pubescence on dorsal surface.

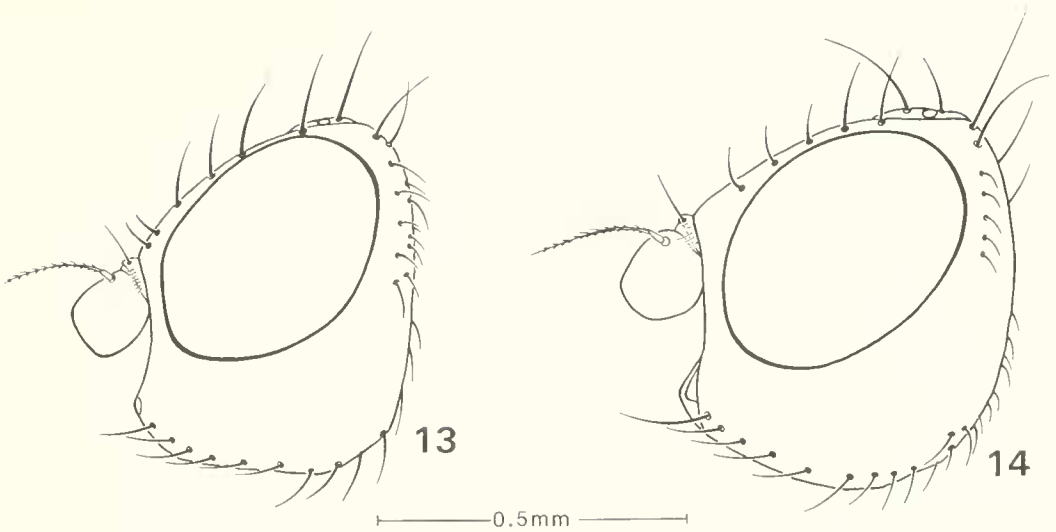
Type material.—The syntype series, labeled “Loew Collection” and comprising one ♂ (only two legs and a left wing remain) and four females (one bearing a red “Type” label (13444); MCZ), does not allow for accurate and reliable identification of this species. Osten Sacken, however, collected and retained a male (head missing) from the type locality (Newport, Rhode Island) when he collected the type series. Osten Sacken’s practice was to retain a few specimens of species represented by a long series, sending the majority to Loew for description. That retained, headless male, which is presumably conspecific with the type series, was identified, dissected, and is the basis for our diagnosis of this species.



Figs. 8–12. 8–10. *Tethina albula*. 8, External male terminalia, posterior view (Florida, Monroe: Bahia Honda Key). 9, Same, lateral view. 10, Surstylus, posterior view (Florida, Lee: Bonita Beach). 11–12. *T. bermudaensis* (Mexico, Tabasco: Paraíso (5 km E)). 11, External male terminalia, posterior view. 12, Same, lateral view.

Other specimens examined.—Nearctic. UNITED STATES. *Florida*. *Flager*: Washington Oaks Gardens (5 km S Marineland), 18 Apr 1989, D. and W.N. Mathis (1 ♂; USNM). *Lee*: Bonita Beach (seashore), 17

Apr 1970, W.W. Wirth (1 ♂; USNM). *Monroe*: Bahia Honda Key (seashore), 11 Apr 1970, W.W. Wirth (2 ♂; USNM). *Volucia*: Ormond Beach 25 Apr 1952, C.W. Sabrosky (5 ♂; USNM).



Figs. 13–14. Heads of *Tethina* species. 13, *T. albula*, lateral view. 14, *T. willistoni*, lateral view.

Neotropical. BAHAMAS. *Exuma Cays*: Leaf Cay of Allens Cays, 7 Jan 1953, E.B. Hayden, L. Giovannoli (1 ♂; USNM). BELIZE. *Belize*: Lighthouse Reef, Half Moon Cay (17°12'N, 87°31'W), 1 Apr 1993, W.N. Mathis (1 ♂; USNM). GRAND CAYMAN. Bodden Town (beach; 19°17'N, 81°14.8'W), 26 Apr 1993, W.N. Mathis (15 ♂, 6 ♀; USNM). Breaker (1.5 km W; 19°18'N, 81°10.9'W), 29 Apr 1994, W.N. Mathis (11 ♂, 2 ♀; USNM). Double Head (19°23.4'N, 81°22.3'W), 27 Apr 1994, D. and W.N. Mathis (1 ♂; USNM). George Town Harbour (19°18'N, 81°22.9'W), 28–29 Apr 1994, W.N. Mathis (1 ♂; USNM). GUYANA. Hope Beach (6°44.7'N, 57°57.3'W), 14–22 Apr 1994, 1995, W.N. Mathis (8 ♀, USNM). Mahaica (6°42.8'N, 57°55.6'W), 14–22 Apr 1994, 1995, W.N. Mathis (38 ♂, 1 ♀; USNM). MEXICO. *Quintana Roo*: Cancun Island, 25 Mar 1974, D.J. Pletsch (1 ♂; USNM). TRINIDAD. *St. Andrew*: Lower Manzanilla (14 km S; 10°23'N, 61°01'W), mouth of Nariva River, 20 Jun 1993, W.N. Mathis (1 ♂; USNM). TURKS AND CAICOS. *West Caicos*: 4 Feb 1953, E.B. Hayden, L. Giovannoli, G.B. Rabb (1 ♂, 1 ♀; USNM).

Distribution.—*Nearctic*: USA (DE, FL,

MA, MD, NC, NY, SC, RI, VA). *Neotropical*: Bahamas, Belize, Guyana, Mexico (QNR), Trinidad, Turks and Caicos, West Indies (Grand Cayman).

Remarks.—*Tethina albula* and *T. bermudaensis* are often collected together, and we have not discovered any external characters that distinguish between them. Structures of the male terminalia must be examined to distinguish the two species.

The surstylus of *T. albula* is curved forward in lateral view and is spatulate in posterior view. The surstylus of *T. bermudaensis* is smaller and triangular in posterior view. We have noted variation, however, in the width of the surstylus of *T. albula* in posterior view. There is also some variation in setal color, especially among specimens from Guyana. Some variation was also noted in the shape of the surstylus in posterior view among specimens from Lee County, Florida (Fig. 10).

5. *Tethina bermudaensis* (Melander)
(Figs. 11, 12)

Rhinoessa bermudaensis Melander 1952: 203.

Tethina bermudaensis: Vockeroth 1965: 727 [generic combination, Nearctic cata-

log].—Woodley and Hilburn 1994: 53–54 [list, Bermuda].—Mathis and Munari 1996: 15 [world catalog].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: Body length 1.70–2.90 mm; body generally whitish gray, microtomentose; setae generally white to slightly off white; gena high, greater than 0.5 eye height; 4 irregular rows of acrostichal setulae; scutellum uniformly gray, lacking a spot; femora mostly yellow to mostly gray; hindfemora of male similar to or only slightly more swollen than fore- and mid-femora; tibiae yellow; basal 4 tarsomeres yellow, apical tarsomere brown; surstylus articulated with and broadly attached to epandrium, broadly spatulate/triangular in posterior view (Fig. 11), length twice width, apex broadly rounded; median margin bearing a row of short, stout setulae along entire length; surstylus in lateral view (Fig. 12) narrow, tapered to apical point, height 2.5× width, basal portion produced anteriorly as a broadly rounded lateral lobe bearing several short setulae mesally; aedeagus thick, straplike.

Type material.—The lectotype ♂, here designated, is labeled “BERMUDA Cooper ISL 25 Jan [19]34 ALMelander/ALMelander Collection 1961 [right third of label with green stippling]/PARATYPE *Rhinoessa bermudaensis* Melander [yellow]/LECTOTYPE ♂ *Rhinoessa bermudaensis* Melander By Foster and Mathis [handwritten except for “LECTOTYPE” and “By”]; black submarginal border].” The lectotype is double mounted (minuten in a cardboard rectangle), is in excellent condition (the abdomen has been removed and dissected; the parts are in an attached microvial), and is deposited in the USNM. Paralectotypes are as follows: 27 specimens (12 ♂, 15 ♀; USNM) bearing the same locality label data as the lectotype. *BERMUDA*. Castle Island, 25 Jan 1934, A.L. Melander (2 ♂; USNM). A male from Cooper Island was labeled by Melander with a holotype label and the re-

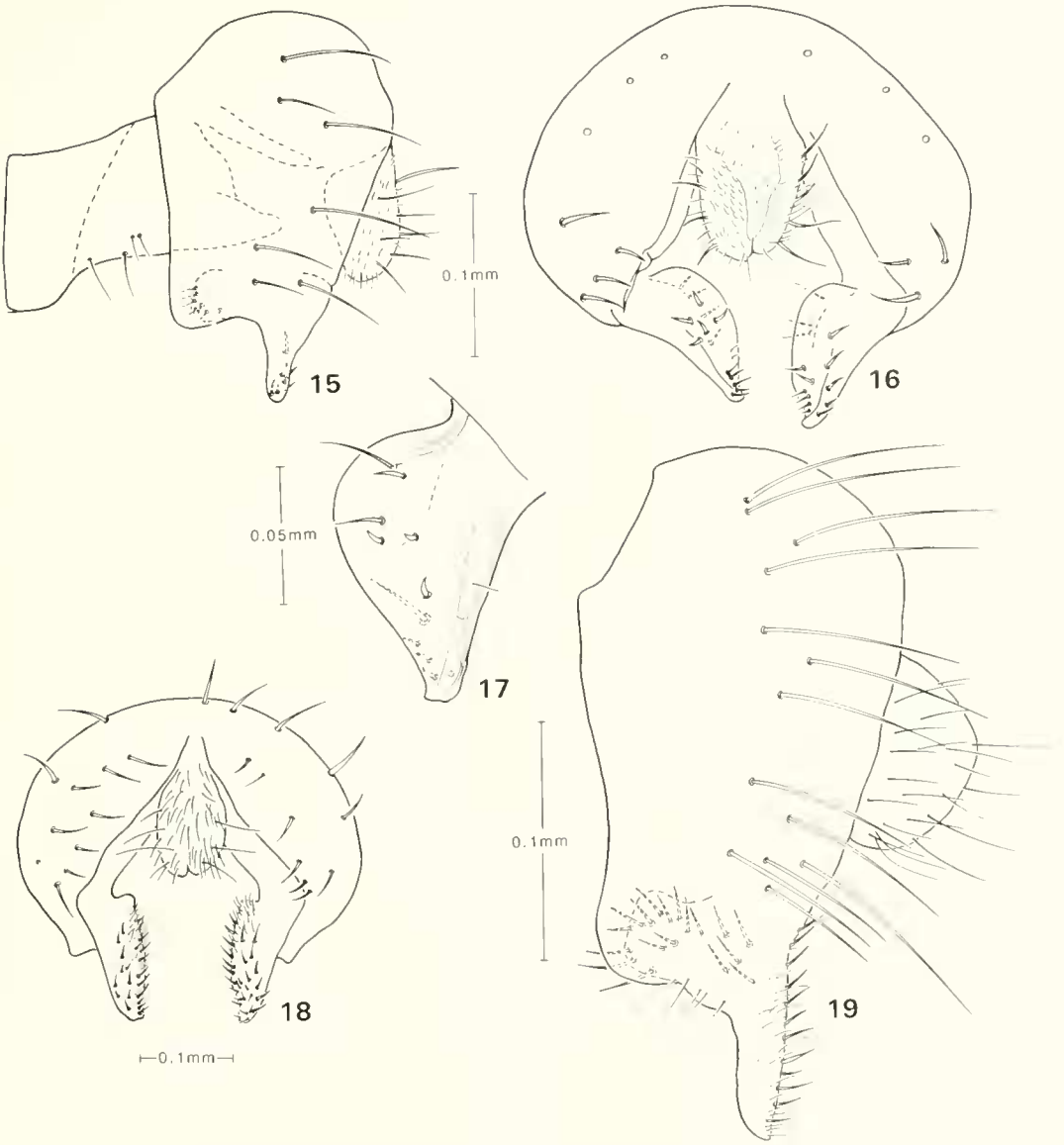
maining syntypes bear paratype labels. One female also bears an “allotype” label. Melander (1952), however, did not designate a holotype, and all specimens of the type series are thus syntypes, necessitating our lectotype designation here.

Other specimens examined.—*Nearctic*. *BERMUDA*. *Devonshire*: Devonshire Bay (32°18'N, 64°44'W), 29 May 1991, N.E. Woodley (14 ♂, 9 ♀; USNM). *Paget*: Paget Marsh (32°17'N, 64°47'W), 3 Jun 1991, W.N. Mathis (9 ♂; USNM). *Pembroke*: Admiralty House Beach (82°18'N, 64°48'W), 15 Nov 1987, D.J. Hilburn, N.E. Woodley (16 ♂, 7 ♀; USNM); Spanish Point beach (32°18'N, 64°49'W), 2 Jun 1991, W.N. Mathis, N.E. Woodley (10 ♂, 2 ♀; USNM). *Southampton*: Horseshoe Bay (seaweed on beach), 15 Nov 1987, D.J. Hilburn, N.E. Woodley (10 ♂, 6 ♀; USNM). *St. George's*: Tucker's Town Bay (beach; 32°20'N, 64°41'W), 31 May 1991, W.N. Mathis (25 ♂, 5 ♀; USNM). *Warwick*: Warwick Long Bay Beach (32°15'N, 64°48'W), 30 May–18 Nov 1987, 1991, D.J. Hilburn, W.N. Mathis, N.E. Woodley (14 ♂, 7 ♀; USNM). *UNITED STATES*. *Florida*. *Lee*: Bonita Beach (seashore), 17 Apr 1970, W.W. Wirth (3 ♂; USNM); Sanibel Island, Lighthouse Park, 17 Apr 1989, D. and W.N. Mathis (2 ♂; USNM). *Sarasota*: Crescent Beach (intertidal rocks), 20 May 1973, W.W. Wirth (1 ♂; USNM). *Volusia*: Ormond Beach 25 Apr 1952, C.W. Sabrosky (2 ♂; USNM).

Neotropical. *CUBA*. *Havana*: Havana (beach; 23°5.8'N, 82°27.7'W), 2–14 Dec 1994, W.N. Mathis (1 ♂; USNM); Jibacoa Beach (57 km E Havana), 26 Apr 1983, W.N. Mathis (20 ♂, 7 ♀; USNM). *MEXICO*. *Tabasco*: Paraíso (5 km E), 6 May 1985, A. Freidberg, W.N. Mathis (33 ♂, 18 ♀; USNM).

Distribution.—*Nearctic*: Bermuda, USA (CT, DE, FL, MA, MD, NC, SC, VA). *Neotropical*: Cuba, Mexico (TAB).

Remarks.—This species is indistinguishable externally from *T. albula* and is often collected with the latter. We can distinguish



Figs. 15-19. 15-17, *Tethina lisa* (Jamaica. Clarendon: Jackson Bay). 15, External male terminalia, lateral view. 16, Same, posterior view. 17, Surstylus, posterior view. 18-19, *T. willistoni*. 18, External male terminalia, posterior view (Tobago. St. David: Plymouth). 19, Same, lateral view.

between these two species only on the basis of structures of the male terminalia.

**6. *Tethina lisa* Foster and Mathis,
new species
(Figs. 15-17)**

Diagnosis.—This species is distinguished from congeners by the following combina-

tion of characters: Body with whitish gray microtomentum; setae generally white except sometimes apical and preapical scutellar setae and at most 1 dorsocentral seta black; gena high, greater than 0.5 eye height; 4 irregular rows of acrostichal setulae; scutellum uniformly gray, lacking yellowish to reddish spot; femora mostly

light, yellowish gray; hindfemora of male similar to fore- and midfemora, not noticeably more swollen; tibiae and basal 4 tarsomeres yellow, apical tarsomere yellow; surstylus articulated with and narrowly attached to epandrium (base of surstylus only half width of epandrium), in posterior view with broad spatulate flange mesally (Fig. 16), median margin essentially bare, lacking robust setulae (Fig. 17); surstylus in lateral view (Fig. 15) narrowly triangular, tapered to rounded point at apex, basal portion produced anteriorly as a lateral lobe that bears a few, scattered setulae mesally; aedeagus thin, ribbonlike.

Description.—Body length 1.40–2.30 mm; body generally whitish gray, microtomentose; setae generally white except sometimes apical and preapical scutellar setae and at most 1 dorsocentral seta black.

Head: All setae white, inserted in dark setal bases if arising from gray microtomentose area; vertex whitish gray, microtomentose; ocellar tubercle bearing 5 short setulae, approximately half length of ocellar setae; frons yellowish, microtomentose; 5 interfrontal setae, proclinate and convergent; row of 6 convergent inner fronto-orbital setae; row of 4 divergent outer fronto-orbital setae; 3 short setulae just above antennae. Antenna pale yellow except slightly brownish at base of arista; 1st flagellomere pubescent; arista brownish, sparsely pubescent. Gena high, height 0.5 or more that of eye, white, microtomentose, becoming gray posteriorly; postgena gray. Peristomal setae with 4 directed dorsally, 5th directed anteriorly, yellowish tubercle dorsad of anterior-most seta. Palpus white; labellum long, yellowish.

Thorax: Generally whitish gray, microtomentose; scutellum uniformly gray, lacking yellowish to reddish spot. Setae generally white except for black apical scutellar setae; acrostichal setulae in 4 irregular rows; dorsocentral setae 6 (2+4); proepisternum and proepimeron each with a seta. Coxae yellowish gray; femora mostly yellow basally, remainder gray; hindfemora of

male similar to fore- and midfemora, not noticeably more swollen; tibiae and basal 4 tarsomeres yellow, apical tarsomere brown. Wing with costa extended to vein M.

Abdomen: Coloration as for thorax; all setae and setulae white. Male terminalia (Figs. 15–17): Surstylus articulated with and narrowly attached to epandrium (base of surstylus only half width of epandrium), in posterior view with broad spatulate flange mesally (Fig. 17), median margin essentially bare, lacking robust setulae (Fig. 16); surstylus in lateral view (Fig. 15) narrowly triangular, tapered to rounded point at apex, basal portion produced anteriorly as a lateral lobe that bears a few, scattered setulae mesally; aedeagus thin, ribbonlike.

Type material.—The holotype ♂ is labeled "JAMAICA. Clarendon: Jackson Bay, 17°44.7'N, 77°12.6'W[,] 13 May 1996, D. and W. Mathis, H. Williams/USNM ENT 00140643 [a plastic barcode label]/HOLOTYPE *Tethina lisae* ♂ Foster and W.N. Mathis USNM [red; species name and "♂ and Foster" handwritten]." The holotype is double mounted (minuten in block of plastic), is in excellent condition, and is deposited in the USNM. Other paratypes are as follows: JAMAICA. same label data as the holotype (3 ♂, 1 ♀; USNM). JAMAICA. *Manchester:* Alligator Pond (17°52.1'N, 77°33.9'W), 8 May 1996, D. and W.N. Mathis, H. Williams (3 ♂, 2 ♀; USNM). *St. Elizabeth:* Port Kaiser (17°51.9'N, 77°35.7'W), 8 May 1996, D. and W.N. Mathis, H. Williams (2 ♂, 2 ♀; USNM); near Port Kaiser (17°52.3'N, 77°34.9'W), 8 May 1996, D. and W.N. Mathis, H. Williams (1 ♂; USNM). *Trelawny:* Falmouth (bay shore), 1 Mar 1969, W.W. Wirth (5 ♂, 4 ♀; USNM).

Other specimens examined.—Neotropical. ANGUILLA. Mead's Bay (18°11'N, 63°08.5'W), 26 Mar 1992, W.E. Steiner, J.M. Swearingen (1 ♂, 1 ♀; USNM).

Distribution.—*Neotropical:* West Indies (Anguilla, Jamaica).

Remarks.—This species differs from *T. willistoni*, *T. albula*, and *T. bermudaensis*

in having the apical scutellar setae and at most one pair of dorsocentral setae black. All other setae are white, apparently without variation (variable in *T. willistoni*). Also the male terminalia of this species are obviously different, i.e. the aedeagus is ribbonlike, placing this species closer to *T. xanthopoda*.

Etymology.—The specific epithet, *lissae*, is a genitive patronym to recognize Lisa Neu Foster, wife of the first author, whose patience and support contributed to finishing this paper.

7. *Tethina willistoni* (Melander)
(Figs. 14, 18, 19)

anthomyza cinerea Williston 1896: 444 [preoccupied, Loew 1862].

Rhinoessa willistoni Melander 1913: 298 [new name for *T. cinerea* of Williston, not Loew].—Hendel 1934: 51 [citation].—Melander 1952: 209 [citation].

Tethina willistoni: Foster 1976b: 3 [Neotropical catalog; generic combination].—Mathis and Munari 1996: 19 [world catalog].

Rhinoessa variseta Melander 1952: 209.
new synonym.

Tethina variseta: Vockeroth 1965: 728 [generic combination, Nearctic catalog].—Hardy and Delfinado 1980: 378–379 [citation, figs. of head, ♂ terminalia, spermathecae, Oahu, Kauai, Maui, Kahoolawe, Hawaii, French Frigate Shoal].—Mathis and Sasakawa 1989: 668 [Australasian/Oceanian catalog].—Mathis and Munari 1996: 19 [world catalog].

Tethina carioca Prado and Tavares 1966: 433 [figs. of ♂ terminalia and wing].—Foster 1976b: 2 [Neotropical catalog].
new synonym.

Diagnosis.—This species is distinguished from congeners by the following combination of characters: Body length 1.65–3.0 mm; body generally gray; at least apical scutellar setae black, often with other black setae, otherwise setae white; gena high, greater than 0.5 eye height; 4 irregular rows

of acrostichal setulae; scutellum uniformly gray, lacking a spot; femora mostly yellow to mostly gray; hindfemora of male similar to or only slightly more swollen than fore- and midfemora; tibiae and basal 4 tarsomeres yellow, apical tarsomere brown; surstylus articulated with and broadly attached to epandrium, broadly spatulate in posterior view (Fig. 18), narrowed apically, length 3× width, apex broadly rounded; median margin bearing moderately dense patch of robust setulae along entire length (Fig. 18), apex truncate, width less than 0.5 width basal margin; surstylus in lateral view (Fig. 19) narrow, posterior margin almost a straight line; aedeagus thick, straplike.

Type material.—The neotype ♂ of *A. cinerea* Williston, here designated, is labeled “W.I. St. Vincent: Wallilabou-beach [13°15'N, 61°16'W], 27 March 1989 Wayne N. Mathis/NEOTYPE *Anthomyza cinerea* ♂ Williston by Foster and Mathis [red, handwritten].” The neotype is double mounted (minuten in a plastic block), is in excellent condition, and is deposited in the USNM.

Although Williston (1896: 444) noted that there were 12 specimens in the original type series, none is apparently extant today. In our search for syntypic specimens, we specifically surveyed collections that are known to be depositories for specimens that H.H. Smith collected on St. Vincent, i.e. the Natural History Museum (London), the principal depository for primary types that H.H. Smith collected on St. Vincent, the American Museum of Natural History, and the University of Kansas. Our examination of collections elsewhere likewise did not reveal any syntypes. The neotype specimen that we have selected is from the type locality and represents the species that is most likely to have been represented by the specimens Williston studied and named. We have six additional males from the type locality that bear the same label information. To stabilize the nomenclature of this species, we deem it necessary to designate a neotype, especially as this is a variable spe-

cies (see "Remarks" section below) and could be confused with other species occurring in the Caribbean that have a high gena and generally pale colored setae (see "Key").

The lectotype ♂ of *R. variseta*, here designated, is labeled "[U.S.A.] CoronaDelMar 29/6/42 [29 Jun 1942] CAL[ifornia] A L Melander/ALMelander Collection 1961 [green stippling on right side]/HOLOTYPE *Rhinoessa variseta* Melander [red]/LECTOTYPE *Rhinoessa variseta* ♂ Melander By Foster and Mathis [handwritten except for "LECTOTYPE" and "By"; black submarginal border]." The lectotype is double mounted (minuten in a rectangular card on end), is in excellent condition, and is deposited in the USNM. Although the lectotype bears a "HOLOTYPE" label, it was published as a syntype, and thus the need for our lectotype designation. The other syntypes, all from California (Los Angeles and Orange Counties) are paralectotypes. We studied in detail (abdomen removed and dissected, the parts are in an attached microvial) a male paralectotype from the type locality that was directly compared with the lectotype.

The holotype ♂ of *Tethina carioca* is labeled "[Brazil. Ilha do] Governador: Galeão [,] Rio [de Janeiro] -Brasil. 11.X.66 [11 Oct 1966] Lopes and Prado/*Tethina carioca* n.sp Prado and Tavares det/Holotypus [red]/N. 13.356 [number handwritten] DIPTERA Inst. Oswaldo Cruz [black margin]." The holotype is double mounted (minuten partially wound around base pin), is in excellent condition (abdomen removed, dissected, parts are in an attached microvial), and is now deposited in MZSP.

Specimens examined.—Neotropical. ANGUILLA. Mead's Bay (18°11.2'N, 63°08.5'W), 26 Mar 1992, W.E. Steiner, J.M. Swearingen (1 ♀; USNM). Sandy Ground (18°12.3'N, 63°05.5'W), 27 Mar 1992, W.E. Steiner, J.M. Swearingen (1 ♂, 2 ♀; USNM). ANTIGUA. Dutchman Bay, 7 Jan 1965, W.W. Wirth (1 ♀; USNM). BAHAMAS. *New Providence*: Nassau, 16 Apr 1953, E.B. Hayden (1 ♀; USNM). BAR-

BADOS. *Christ Church*: Rockley Beach (13°04.3'N, 59°35.2'W), 21 May–1 Sep 1996, 1997, D. and W.N. Mathis, H. Williams (5 ♂; USNM). *St. Andrew*: Long Pond (13°15.1'N, 59°33.3'W), 21 May–11 Sep 1996, 1997, D. and W.N. Mathis, H. Williams (17 ♂, 1 ♀; USNM). *St. Peter*: Six Mens Bay (13°16.5'N, 59°38.8'W), 22 May–12 Sep 1996, D. and W.N. Mathis, H. Williams (11 ♂; USNM). BARBUDA. *Cocoa Point*, 28 Apr 1958, J.F.G. Clarke (1 ♀; USNM). BELIZE. *Stann Creek*: Carrie Bow (16°48'N, 88°05'W), 1 Jun 1985, W.N. Mathis (1 ♂; USNM). *Belize*: Lighthouse Reef, Half Moon Cay, 1 Apr 1993, W.N. Mathis (3 ♀; USNM). COSTA RICA. *Guamacaste*: Murciélago, 1 Apr 1988, W.E. Steiner, J.M. Hill, J.M. Swearingen, J.M. Mitchell (1 ♀; USNM); *Playa Tamarindo*, 27–29 Mar 1987, W.E. Steiner, J.M. Hill (2 ♀; USNM). CURACÃO. *Coral Specht* (3 km E Willemstad), 8–15 Feb 1987, W.E. Steiner, J.M. Swearingen (7 ♀; USNM). *Playa Kalki*, 14 Feb 1987, W.E. Steiner, J.M. Swearingen (11 ♂, 23 ♀; USNM). DOMINICA. *Cabrits Swamp* (15°35'N, 61°29'W), 23 Feb–22–25 Mar 1965, 1989, W.N. Mathis, W.W. Wirth (7 ♂, 2 ♀; USNM). *Coulibistri*, 21 Mar 1989, W.N. Mathis (21 ♂, 1 ♀; USNM). *Dublanc*, 21 Mar 1989, A. Freidberg (1 ♂, 2 ♀; USNM). *Grande Savane* (pond margin), 20 Mar 1965, W.W. Wirth (2 ♀; USNM). *Layou*, 12 May 1966, G.S. Steyskal (7 ♂, 10 ♀; USNM). *Layou River mouth*, 9 Jan–24 Mar 1965, W.W. Wirth, G.C. Steyskal (15 ♂, 8 ♀; USNM). *Macoucheri* (seashore), 1 Feb 1965, W.W. Wirth (2 ♂, 3 ♀; USNM). *Mero* (seashore), 14 Jan 1965 W.W. Wirth (7 ♂, 3 ♀; USNM). *Pagua Bay*, 18 Feb 1965, W.W. Wirth (2 ♂, 3 ♀; USNM). *Portsmouth*, 2 Apr–Jul 1966, 1976, R.J. Gagné, N.L.H. Krauss (1 ♂, 1 ♀; USNM). *St. David Bay* (sea shore), 23 Jan 1965, W.W. Wirth (3 ♂, 2 ♀; USNM). *Soufrière Bay*, 24 Mar 1989, W.N. Mathis (6 ♂, 2 ♀; USNM). *Woodford Hill*, 27 Feb 1965, W.W. Wirth (2 ♂, 4 ♀; USNM). DOMINICAN REPUBLIC. *La Altigracia*: Baya-

hibe (18°22.3'N, 68°50.4'W), 13 May 1994, W.N. Mathis (9 ♂; USNM). *La Romana*: Isla Saona, Catuano (18°11.7'N, 68°46.8'W), 13 May 1995, W.N. Mathis (1 ♂; USNM). *Monte Cristi*: Monte Cristi (beach; 19°51.5'N, 71°39.5'W), 18 May 1995, W.N. Mathis (5 ♂, 1 ♀; USNM). *San Pedro de Macoris*: Playa Juan Dolio, 16 Nov 1984, R. Faitoute, P.S. Spangler (8 ♂, 3 ♀; USNM). GRAND CAYMAN. Bodden Town (beach; 19°17'N, 81°14.8'W), 26 Apr 1993, W.N. Mathis (4 ♂; USNM). Breaker (1.5 km W); 19°18'N, 81°10.9'W), 29 Apr 1994, W.N. Mathis (1 ♂; USNM). George Town Harbour (19°18'N, 81°22.9'W), 28–29 Apr 1994, W.N. Mathis (22 ♂; USNM). GRENADA. *St. George*: Beauséjour Bay (12°05.5'N, 61°44.9'W), 21 Sep 1996, W.N. Mathis (5 ♂, 1 ♀; USNM). *St. John*: Gouyave Bay (12°09.6'N, 61°44'W), 21 Sep 1996, W.N. Mathis (8 ♂, 2 ♀; USNM). *St. Patrick*: Bathway Beach (12°12.6'N, 61°36.7'W), 18–20 Sep 1996, W.N. Mathis (2 ♂; USNM); Levera Bay (12°13.6'N, 61°36.6'W), 18 Sep 1996, W.N. Mathis (3 ♂; USNM). JAMAICA. *Clarendon*: Farquhars Beach (17°50.9'N, 77°22.8'W), 9 May 1996, D. and W.N. Mathis, H. Williams (2 ♂; USNM); Jackson Bay (17°44.7'N, 77°12.6'W), 13 May 1996, D. and W.N. Mathis, H. Williams (3 ♂, 1 ♀; USNM). *Manchester*: Alligator Pond (17°52.1'N, 77°33.9'W), 8 May 1996, D. and W.N. Mathis, H. Williams (6 ♂; USNM). MONTSERRAT. Plymouth (0–100 m), Jul 1967, 1971, 1972, N.L.H. Krauss (19 ♂, 15 ♀; USNM). PANAMA. Garachipe River 14 Feb 1952, F.B. Blanton (1 ♂; USNM). PUERTO RICO. Arecibo (beach; 18°28.7'N, 66°42'W), 23 Sep 1995, D. and W.N. Mathis (7 ♂, 1 ♀; USNM). Bahía Salinas (beach; 17°57.5'N, 67°12'W), 20 Sep 1995, D. and W.N. Mathis (2 ♂, 1 ♀; USNM). Naguabo, Playa de Naguabo (18°11'N, 65°43'W), 17 Feb 1996, W.E. Steiner, J.M. Swearingen (1 ♂, 1 ♀; USNM). Playa de Guayanilla (18°0.4'N, 66°46.1'W), 19 Sep 1995, D. and W.N. Mathis (6 ♂, 1 ♀; USNM). Punta Jacinto

(near Guanica; 17°57'N, 66°52.6'W), 20 Sep 1995, D. and W.N. Mathis (3 ♂; USNM). San Juan (beach east; 18°27.6'N, 65°59.5'W), 24 Sep 1995, D. and W.N. Mathis (1 ♂; USNM). ST. CROIX. Hams Bay (17°46'N, 64°53'W), 14 Feb 1996, W.E. Steiner, J.M. Swearingen (9 ♂, 5 ♀; USNM). ST. LUCIA. Soufrière (beach; 13°51'N, 16°54'W), 11–12 Jun 1991, W.N. and D. Mathis (5 ♂, 1 ♀; USNM). ST. VINCENT. *Charlotte*: Spring (13°11.1'N, 61°08.5'W), 6 Sep 1997, W.N. Mathis (5 ♂; USNM); Yambou River (13°09.8'N, 61°08.7'W), 8–10 Sep 1997, W.N. Mathis (4 ♂; USNM). *St. Andrew*: Buccament Bay (near beach; 13°11'N, 61°16'W), 8 Jun 1991, D. and W.N. Mathis (3 ♂; USNM). *St. Patrick*: Cumberland Bay (13°16'N, 61°16'W), 28 Mar–15 Sep 1989, 1997, A. Freidberg, W.N. Mathis (2 ♂; USNM); Wallilabou (beach; 13°15'N, 61°16'W), 27 Mar 1989, W.N. Mathis (7 ♂; USNM). TOBAGO. *St. David*: Plymouth (beach; 11°13.2'N, 60°46.7'W), 19 Apr 1994, W.N. Mathis (7 ♂, 1 ♀; USNM). *St. John*: Charlotteville (beach; 11°19.5'N, 60°32.9'W), 16–18 Apr–10–16 Jun 1993, 1994, D. and W.N. Mathis (54 ♂, 13 ♀; USNM); Charlotteville (5 km S; 11°18.9'N, 60°34.5'W), Hermitage River and beach, 22 Apr–11 Jun 1993, 1994, D. and W.N. Mathis (17 ♂, 1 ♀; USNM); Speyside (11°18'N, 60°32'W), 13–15 Jun 1993, W.N. Mathis (5 ♂, 2 ♀; USNM). *St. Paul*: Delaford, Kings Bay (11°16'N, 60°32.8'W), 13 Jun 1993, W.N. Mathis (19 ♂, 2 ♀; USNM). TURKS and CAICOS. *South Caicos*: 11 Feb 1953, E.B. Hayden, G.B. Rabb (1 ♂; USNM).

Distribution.—*Australasian/Oceanian*: Hawaii (Hawaii, Kahoolawe, Kauai, Maui, Oahu). *Nearctic*: U.S.A. (CA). *Neotropical*: Bahamas, Belize, Brazil (RJ), Curaçao, Ecuador, Mexico (CHI), Panama, Peru, Tobago, Turks and Caicos, West Indies (Anguilla, Antigua, Barbados, Barbuda, Dominica, Dominican Republic, Grand Cayman, Grenada, Jamaica, Montserrat, Puerto Rico, St. Croix, St. Lucia, St. Vincent).

Remarks.—The variation in setal color-

ation and size of *T. willistoni* is remarkable. While we have seen virtually no variation in structures of the male terminalia, the variation in external characters is as follows: the more robust specimens have mostly stout, black setae and in general present a very "bristly" habitus (similar to *T. spinulosa* and *T. horripilans*). Smaller, more delicate specimens have only the apical scutellar setae black with all other setae being white. Many specimens fall between these two extremes, making it virtually impossible to distinguish between *T. willistoni* and other species on the basis of external structures alone.

8. *Tethina texana* (Malloch)
Figs. 20–22, 24

Rhinoessa texana Malloch 1913: 148.—Hendel 1934: 50 [citation].—Melander 1952: 208 [citation].

Tethina texana: Sturtevant 1923: 7 [generic combination].—Vockeroth 1965: 728 [Nearctic catalog].—Woodley and Hilburn 1994: 54 [as *Tethina* sp.].—Mathis and Munari 1996: 19 [world catalog].

Tethina chilensis Malloch 1934: 455.—Foster 1976b: 2 [Neotropical catalog].—Mathis and Munari 1996: 15 [world catalog]. **new synonym.**

Diagnosis.—This species is distinguished from congeners by the following combination of characters: Body generally gray; setae black; gena short, less than 0.5 eye height; generally 4 irregular rows of acrostichal setulae (some Mexican specimens with only 2 rows); scutellum uniformly gray, lacking a spot; femora mostly yellow to mostly gray; hindfemora of male similar to or only slightly more swollen than fore- and midfemora; tibiae and basal 4 tarsomeres yellow, apical tarsomere brown; surstylus articulated with and broadly attached to epandrium, boot-shaped in posterior view (Fig. 21), narrowed apically, length $2.5\times$ width, apex narrowly rounded; median margin bearing moderately dense patch of very thick, short setulae (length of

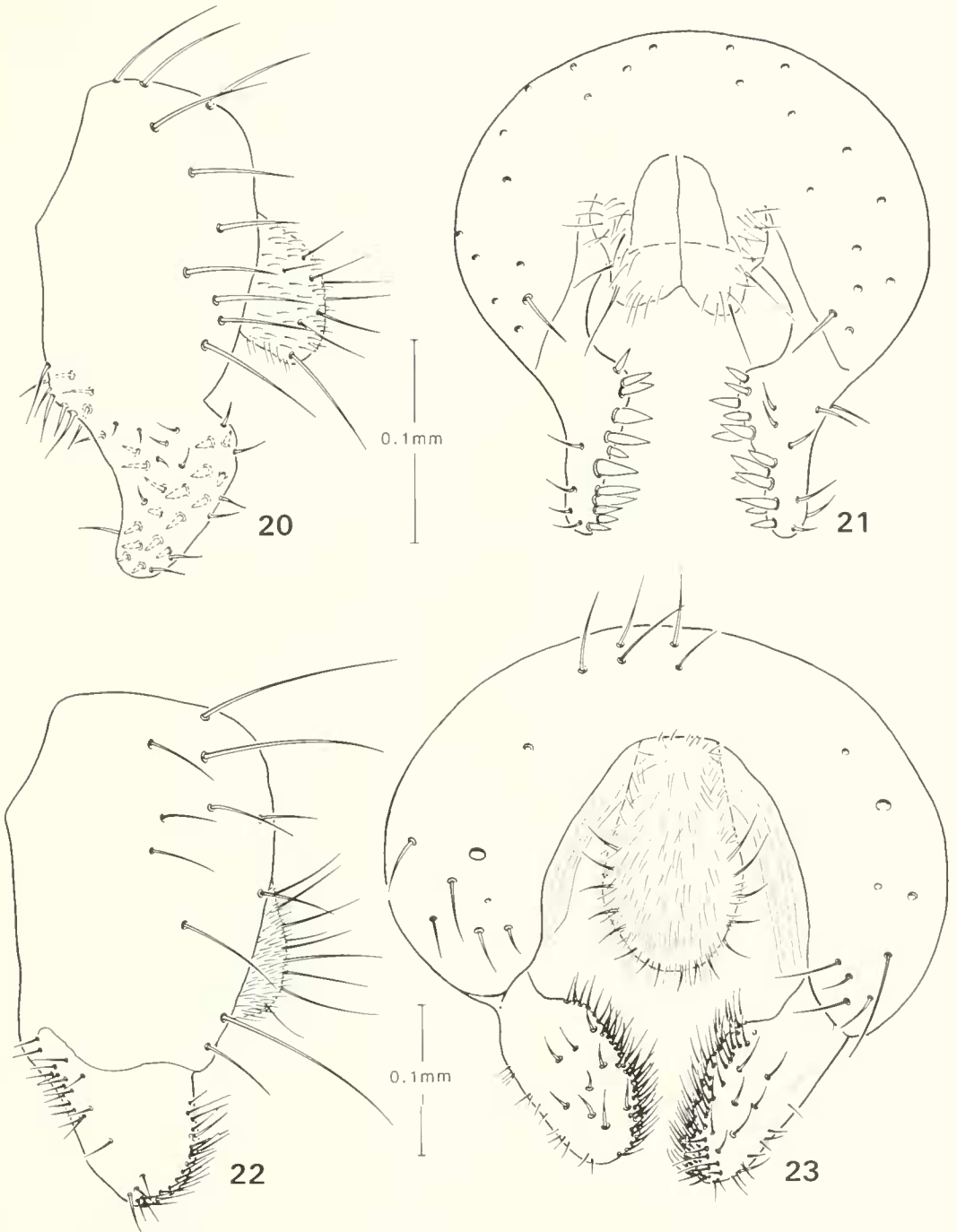
setulae $2\text{--}2.5\times$ width) along entire length (Fig. 21); surstylus in lateral view (Fig. 20) broadly spatulate with slight curve anteriorly, external surface bearing very sparse, scattered setulae; aedeagus thin, ribbonlike.

Type material.—The holotype ♀ of *R. texana* is labeled "[U.S.A.] Corpus Chr[isti] 12 Apr [19]06 T[e]x[as] [date handwritten]/FCPratt Collector/Type No. 15807 U.S.N.M. [red; "15807" handwritten]/*Rhinoessa texana* Malloch Type [black submargin; handwritten]." The holotype is double mounted (glued to a paper point), is in excellent condition, and is deposited in the USNM (15807). We also studied the male paratype from "St. Augustine" [probably equals Augustine, in Jeff Davis Co.], Texas. The paratype had its abdomen removed and dissected; the parts are in an attached microvial.

The holotype ♂ of *T. chilensis* is labeled "Angol [blacked out] Chile DSBullock/Antofagasta Ap. 11, 1931 [handwritten]/Type No. 50447 U.S.N.M. [red; "50447" handwritten]/*Tethina chilensis* Type det. JRMALLOCH [species name and "Type" handwritten; black submargin]. The holotype is double mounted (glued to a paper point), is in poor condition (several setae missing or displaced, pedicel and 1st flagellomere of right antenna missing, some tarsomeres missing; abdomen removed and dissected, the parts in an attached microvial), and is deposited in the USNM (50447).

Specimens examined.—Nearctic. BER-MUDA. *Paget*: Hungry Bay (beach; $32^{\circ}17'N$, $64^{\circ}45'W$), 2 Jun 1991, W.N. Mathis (1 ♂; USNM). *Pembroke*: Spanish Point beach ($32^{\circ}18'N$, $64^{\circ}49'W$), 2 Jun 1991, W.N. Mathis (2 ♂; USNM). UNITED STATES. *Texas*. Jess Davis: Augustine, 22 Mar 1908, E.S. Tucker (1 ♂; USNM).

Neotropical. CHILE. *Antofagasta*: Antofagasta, 11 Apr 1931, D.S. Bullock (1 ♂, 1 ♀; holotype and allotype respectively; USNM). MEXICO. *Chiapas*: Puerto Arista, 18 May 1985, A. Freidberg, W.N. Mathis (1 ♂; USNM). *Tabasco*: Paraíso (5 km E),



Figs. 20-23. 20-21, *Tethina texana*. 20, External male terminalia, lateral view (Mexico, Tabasco: Paraíso). 21, Same, posterior view. 22-23, *T. xanthopoda*. 22, External male terminalia, lateral view (Grand Cayman, Georgetown Harbour). 23, Same, posterior view.

6 May 1985, A. Freidberg, W.N. Mathis (3 ♂; USNM).

Distribution.—*Nearctic*: Bermuda, USA (TX). *Neotropical*: Chile, Mexico (CHI, TAB).

9. *Tethina xanthopoda* (Williston)
(Figs. 22, 23, 25)

Anthomyza xanthopoda Williston 1896: 445.

Rhinoessa xanthopoda: Czerny 1902: 256 [generic combination].—Melander 1913: 298 [key].—Hendel 1934: 51 [citation].—Melander 1952: 209 [citation].

Tethina xanthopoda: Foster 1976b: 3 [generic combination. Neotropical catalog].—Woodley and Hilburn 1994: 54 [list, Bermuda].—Mathis and Munari 1996: 19 [world catalog].

Rhinoessa seriata Melander 1952: 206.
new synonym.

Tethina seriata: Vockeroth 1965: 728 [generic combination, Nearctic catalog].—Mathis and Munari 1996: 18 [world catalog].

Tethina brasiliensis Prado and Tavares 1966: 435 [figs. of ♂ and ♀ terminalia].—Foster 1976b: 2 [Neotropical catalog]. **new synonym.**

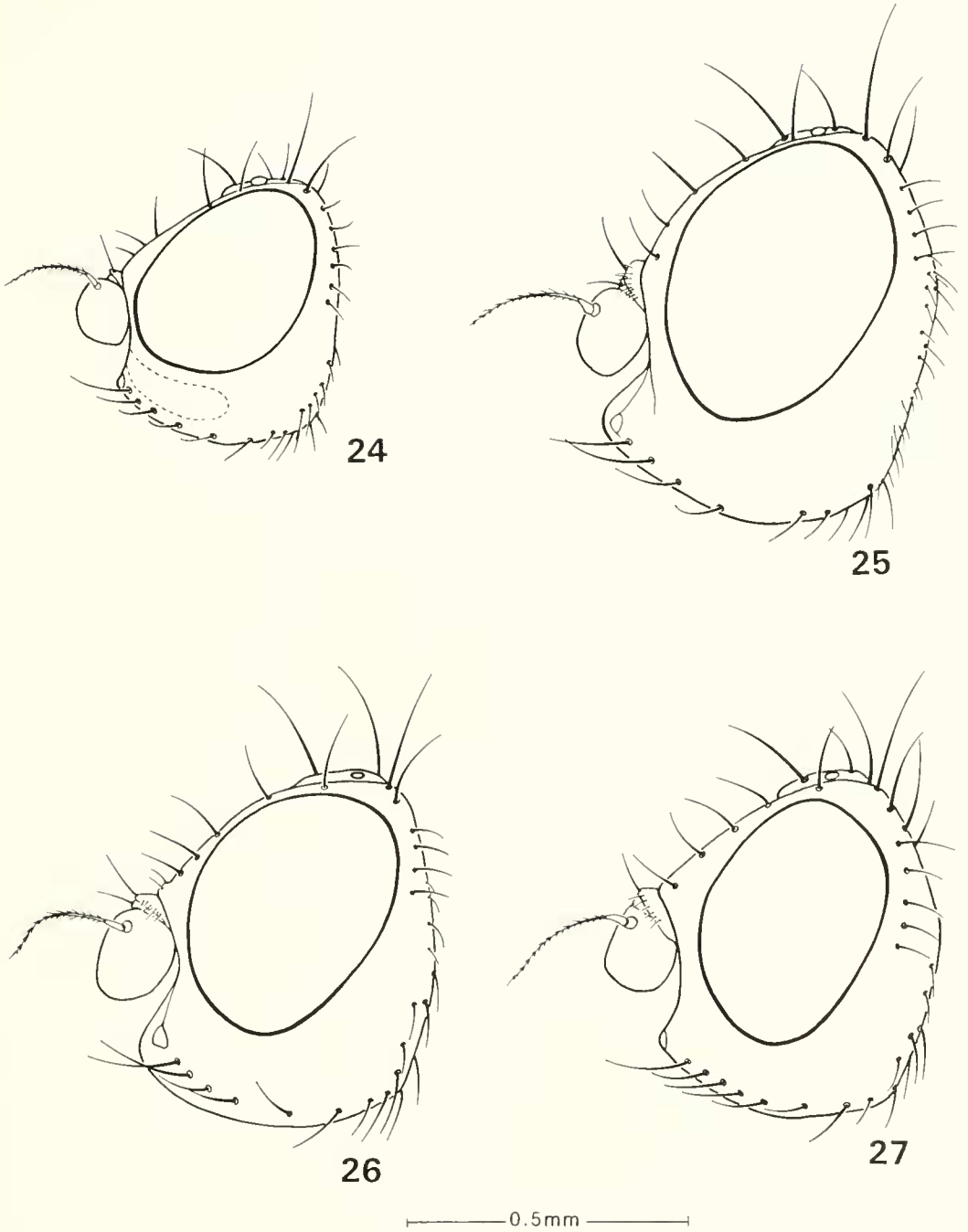
Diagnosis.—This species is distinguished from congeners by the following combination of characters: Body length 1.70–3.10 mm; body with gray microtomentum; setae generally black; gena short, less than 0.5 eye height; 4 somewhat irregular rows of acrostichal setulae; apex of scutellum with yellowish to reddish spot (sometimes variable in size but always obvious); femora yellow; hindfemora of male similar to or only slightly more swollen than fore- and midfemora; tibiae and basal 4 tarsomeres yellow, apical tarsomere brown; surstylus articulated with and broadly attached to epandrium, broadly spatulate in posterior view (Fig. 23), length less than twice width, median margin bearing dense patch of robust setulae along entire length (Fig. 23), apex broadly rounded; surstylus in lateral

view (Fig. 22) broadly developed, lateral margin only slightly narrowed posteriorly, apex broadly rounded, lateral surface mostly bare, basal portion only slightly produced anteriorly, bearing moderately dense patch of setulae; aedeagus narrow, ribbonlike.

Type material.—The lectotype ♂ of *T. xanthopoda*, here designated, is labeled "Windward side St. Vincent, W.I. H. H. Smith./W. Indies. 1907-66./*Anthomyza xanthopoda* Will [handwritten, red]/LECTOTYPE ♂ *Anthomyza xanthopoda* Williston By Wayne N. Mathis [handwritten except for "LECTOTYPE" and "By"; black submarginal border]." The lectotype is double mounted (smaller pin in a rectangular paper card), is in good condition (abdomen has been removed, dissected, and the parts are in an attached microvial), and is deposited in the BMNH. The syntype series comprised three specimens. The whereabouts of the other two specimens, which are automatically paralectotypes, is unknown.

The lectotype ♂ of *R. seriata*, here designated, is labeled "Miami FL[ORID]A 20 Apr '30 [20 Apr 1930] ALMelander/HOLOTYPE *Rhinoessa seriata* Melander [red]/ALMelander Collection 1961 [green stippling on right one-third of label]/LECTOTYPE *Rhinoessa seriata* Melander ♂ By Foster and Mathis [handwritten except for "LECTOTYPE" and "By"; black submarginal border]." The lectotype is double mounted (minuten in a rectangular card), is in excellent condition (the abdomen has been removed, dissected, and the parts are in an attached microvial), and is deposited in the USNM.

The holotype ♂ of *Tethina brasiliensis* is labeled "[Ilha do] Governador Rio [de Janeiro,] Brasil [,] H.S. Lopes XI.63 [Nov 1963]/*Tethina brasiliensis* n.sp. Prado and Tavares det/Holotypus [red]/N. 13.358 DIPTERA Inst. Oswaldo Cruz [black border]." The holotype is double mounted (minuten partially wound around base pin), is in excellent condition (abdomen removed, dis-



Figs. 24–27. Heads of *Tethina* species. 24, *T. texana*, lateral view. 25, *T. lanthopoda*, lateral view. 26, *T. setulosa*, lateral view. 27, *T. cohiba*, lateral view.

sected, parts are in an attached microvial), and is now deposited in MZSP.

Other specimens examined.—Nearctic. BERMUDA. *Devonshire*: Devonshire Bay (32°18'N, 64°44'W), 29 May 1991, N.E. Woodley (1 ♂, 1 ♀; USNM). *Hamilton*: Shelly Bay Beach (32°19'N, 64°44'W), 31 May 1991, W.N. Mathis, N.E. Woodley (21 ♂, 3 ♀; USNM). *Pembroke*: Admiralty House Beach (82°18'N, 64°48'W), 2 Jun–15 Nov 1987, 1991, D.J. Hilburn, W.N. Mathis, N.E. Woodley (4 ♂; USNM); Spanish Point beach (32°18'N, 64°49'W), 2 Jun 1991, W.N. Mathis (1 ♂; USNM). UNITED STATES. *Alabama*. *Baldwin*: Robertsdale, 24 Jun 1952, A.H. Sturtevant (1 ♀; USNM). *Florida*. *Collier*: Marco, 28 Mar 1954, K.V. Krombein (1 ♀; USNM); Naples, 27 Jan 1932, A.L. Melander (1 ♂; USNM). *Dade*: Miami, 20 Apr 1930, A.L. Melander (2 ♂; USNM). *Franklin*: Apalachicola, Sep 1954, H.D. Staker (1 ♂; USNM). *Indian River*: Vero Beach, J.R. Malloch (3 ♀; USNM). *Lee*: Bonita Beach, 17 Apr 1970, W.W. Wirth (1 ♂; USNM). *Monroe*: Bahia Honda Key, 11 Apr 1970, W.W. Wirth (4 ♂; USNM); Big Pine Key, Cactus Hammock, 27 Feb 1984, W.E. Steiner, J.M. Swearingen (9 ♂, 7 ♀; USNM); Long Key, 24 Jun 1953, M.R. Wheeler, A.H. Sturtevant (8 ♂; USNM); Lower Matecumbe Key, 3 May 1986, D. Bogar, W. Steiner (1 ♂, 1 ♀; USNM); Tavernier, 25 Jun 1953, M.R. Wheeler (1 ♂; USNM). *Sarasota*: Crescent Beach, 20 May 1973, W.W. Wirth (4 ♂, 3 ♀; USNM).

Neotropical. ANGUILLA. Blowing Point (18°10.5'N, 63°5.8'W), 29 Mar 1992, W.E. Steiner, J.M. Swearingen (10 ♂, 9 ♀; USNM). ANTIGUA. near airport, 19 Mar 1989, A. Freidberg, W.N. Mathis (53 ♂, 2 ♀; USNM). Dutchman Bay, 7 Jan 1965, W.W. Wirth (1 ♂, 1 ♀; USNM). BAHAMAS. *Abaco Cays*: Great Sale Cay, 10 May 1953, L. Giovannoli, G.B. Rabb (12 ♂, 1 ♀; USNM). *Bimini*: 22–31 Jan 1968, G.M. Stokes (2 ♀; USNM). *Eleuthera*: Governors Harbour, 31 Mar 1953, L. Giovannoli, E.B. Hayden (31 ♂, 24 ♀; USNM). *Exuma Cays*:

Warderick Wells Cay, 10 Jan 1953, L. Giovannoli (1 ♀; USNM). *Grand Bahama*: west end, 12 May 1953, E.B. Hayden, L. Giovannoli, G.B. Rabb (2 ♂; USNM). *Great Inagua*: Matthew Town, 31 Jan 1953, E.B. Hayden, G.B. Rabb (1 ♀; USNM). *New Providence*: Nassau, 5–16 Apr 1953, E.B. Hayden, G.B. Rabb (14 ♂, 2 ♀; USNM). *North Bimini*: Apr 1968, G.M. Stokes (1 ♀; USNM). *South Bimini Island*: 10–14 Apr–Jul 1951, 1952, M. Cazier, W. Gertsch, E. Mayr, C. and P. Vaurie (16 ♂, 3 ♀; USNM). BARBADOS. *Christ Church*: Rockley Beach (13°04.3'N, 59°35.2'W), 31 Aug 1997, W.N. Mathis (6 ♂; USNM). BARBUDA. Spanish Point, 29 Apr 1958, J.F.G. Clarke (1 ♂, 1 ♀; USNM). BELIZE. *Belize*: Lighthouse Reef, Half Moon Cay (17°12'N, 87°31'W), 1 Apr 1993, W.N. Mathis (12 ♂, 7 ♀; USNM). Turneffe Islands. Blackbird Caye (17°19'N, 87°48'W), 27–30 Mar 1993, W.N. Mathis (12 ♂, 1 ♀; USNM). Turneffe Islands. Calabash Caye (17°17'N, 87°48'W), 27–30 Mar 1993, W.N. Mathis (23 ♂, 4 ♀; USNM). *Stann Creek*: Carrie Bow Cay, 15 Jan–30 Jul 1984, 1985, 1987, 1988, 1989, C. Feller, W.N. Mathis, H.B. Williams (37 ♂, 71 ♀; USNM). Coco Plum Cay, 24 Jun 1990, C. Feller, H.B. Williams (2 ♂, 2 ♀; USNM). Dangriga (16°58'N, 88°13'W), 3–4 Apr 1993, W.N. Mathis (5 ♂, 2 ♀; USNM); Glover's Reef, Long Cay 27–28 Jul 1989, W.N. Mathis (1 ♂; USNM); Glover's Reef, Northeast Cay 27 Jul 1989, W.N. Mathis (1 ♂; USNM). Man of War Cay, 24 Jun–31 Jul 1989, 1990, C. Feller, W.N. Mathis, H.B. Williams (4 ♂; USNM). Salt Creek (12 N Dangriga), 28 Mar 1988, W.N. Mathis (1 ♂; USNM). CUBA. *Havana*: Havana (beach; 23°5.8'N, 82°27.7'W), 2–14 Dec 1994, W.N. Mathis (16 ♂; USNM); Jibacoa Beach (57 km E Havana), 26 Apr 1983, W.N. Mathis (1 ♀; USNM). *Matanzas*: Playa Larga (1 km E), 2 May 1983, W.N. Mathis (8 ♂, 5 ♀; USNM). *Sancti Spiritus*: Playa Ancón (21°44.1'N, 79°59.9'W), 12 Dec 1994, W.N. Mathis (1 ♀; USNM). CURACAO. Playa Kalki, 14 Feb 1987, W.E. Steiner, J.M. Swearingen (2 ♂; USNM). DOMINICA.

- Calibishie (seashore), 27 Feb 1965, W.W. Wirth (1 ♀; USNM). Layou River mouth, 9 Jan–24 Mar–4 Oct 1965, 1966, A.B. Gurney, W.W. Wirth (6 ♂, 2 ♀; USNM). Macoucheri (seashore), 1 Feb 1965, W.W. Wirth (1 ♀; USNM). Pagua Bay, 18 Feb 1965, W.W. Wirth (1 ♀; USNM). St. David Bay (sea shore), 23 Jan 1965, W.W. Wirth (3 ♂; USNM). Woodford Hill, 27 Feb 1965, W.W. Wirth (4 ♂; USNM). DOMINICAN REPUBLIC. *Azua*: Puerto Viejo (18°20.9'N, 70°50.4'W), 14 May 1995, W.N. Mathis (8 ♂; USNM). *La Altagracia*: Bayahibe (18°22.3'N, 68°50.4'W), 13 May 1994, W.N. Mathis (8 ♂; USNM). *La Romana*: Isla Saona, Catuano (18°11.7'N, 68°46.8'W), 13 May 1995, W.N. Mathis (12 ♂, 1 ♀; USNM). *San Pedro de Macoris*: Playa Juan Dolio, 16 Nov 1984, R. Faitoute, P.S. Spangler (2 ♂, 3 ♀; USNM). GRAND CAYMAN. Bodden Town (beach; 19°17'N, 81°14.8'W), 26 Apr 1993, W.N. Mathis (10 ♂; USNM). Breaker (1.5 km W); 19°18'N, 81°10.9'W), 29 Apr 1994, W.N. Mathis (5 ♂; USNM). Double Head (19°23.4'N, 81°22.3'W), 27 Apr 1994, D. and W.N. Mathis (4 ♂; USNM). George Town Harbour (19°18'N, 81°22.9'W), 28–29 Apr 1994, W.N. Mathis (10 ♂; USNM). GRENADA. *St. Andrew*: Pearls Airport (12°08.7'N, 61°36.6'W), 15 Sep 1997, W.N. Mathis (4 ♂; USNM). *St. George*: Beau-séjour Bay (12°05.5'N, 61°44.9'W), 21 Sep 1996, W.N. Mathis (6 ♂; USNM). *St. Patrick*: Levera Bay (12°13.6'N, 61°36.6'W), 18 Sep 1996, W.N. Mathis (1 ♂; USNM). GUYANA. Hope Beach (6°44.7'N, 57°57.3'W), 14 Apr 1994, W.N. Mathis (1 ♂; USNM). JAMAICA. *Clarendon*: Barnswell Beach (17°45.'N, 77°08.5'W), 13 May 1996, D. and W.N. Mathis, H. Williams (9 ♂; USNM); Jackson Bay (17°44.7'N, 77°12.6'W), 13 May 1996, D. and W.N. Mathis, H. Williams (2 ♂; USNM). *Manchester*: Alligator Pond (17°52.1'N, 77°33.9'W), 8 May 1996, D. and W.N. Mathis, H. Williams (2 ♂, 1 ♀; USNM). *St. Catherine*: Port Henderson (bay shore), 24 Feb 1969, W.W. Wirth (1 ♂; USNM). *St. Elizabeth*: Black River (18°01.4'N, 77°51.1'W), 11 May 1996, D. and W.N. Mathis, H. Williams (2 ♂ USNM); Port Kaiser (17°51.9'N, 77°35.7'W), 8 May 1996, D. and W.N. Mathis, H. Williams (1 ♂; USNM). *St. Thomas*: Rozelle (17°52.3'N, 76°27.7'W), 14 May 1996, D. and W.N. Mathis, H. Williams (1 ♂; USNM). *Trelawny*: Falmouth (bay shore), 1 Mar 1969, W.W. Wirth (1 ♂, 8 ♀; USNM). *Westmoreland*: Negril Beach (mangrove, rocky shore), 12 Mar 1970, W.W. Wirth (1 ♂, 2 ♀; USNM). MEXICO. *Quintana Roo*: Cancun, 25 Mar–29 Oct 1974, 1975, D.J. Pletsch (7 ♀; USNM). *Yucatan*: Pajaros Isla, 4 Jul 1961, E.R. Fosberg (1 ♂; USNM). PANAMA. *Canal Zone*: Mojinga Swamp, 13 Jan 1953, F.S. Blanton (1 ♂; USNM). *Darien*: Garachine, Feb 1953, F.S. Blanton (1 ♂; USNM). PUERTO RICO. Arcibo (beach; 18°28.7'N, 66°42'W), 23 Sep 1995, D. and W.N. Mathis (10 ♂; USNM). Cabo Rojo (S Mayaguez), 8 Apr 1972, L. Knutson (5 ♂, 4 ♀; USNM). Fajardo, Las Croabas (Seven Seas Beach; 18°23'N, 65°37'W), 17 Feb 1996, W.E. Steiner, J.M. Swearingen (2 ♀; USNM). Guanica, 22 Jun 1952, F.S. Blanton (1 ♀; USNM). Naguabo, Playa de Naguabo (18°11'N, 65°43'W), 17 Feb 1996, W.E. Steiner, J.M. Swearingen (29 ♂, 27 ♀; USNM). Playa de Guayanilla (18°0.4'N, 66°46.1'W), 19 Sep 1995, D. and W.N. Mathis (5 ♂; USNM). San Juan (beach east; 18°27.6'N, 65°59.5'W), 24 Sep 1995, D. and W.N. Mathis (13 ♂, 2 ♀; USNM). ST. LUCIA. Soufrière (beach; 13°51'N, 16°54'W), 11–12 Jun 1991, W.N. and D. Mathis (6 ♂; USNM). ST. VINCENT. *St. Andrew*: Buccament Bay (near beach; 13°11'N, 61°16'W), 8 Jun 1991, D. and W.N. Mathis (2 ♂, 1 ♀; USNM). *St. Patrick*: Cumberland Bay (13°16'N, 61°16'W), 8–10 Jun 1991, D. and W.N. Mathis (4 ♂; USNM). TOBAGO. *St. David*: Plymouth (beach; 11°13.2'N, 60°46.7'W), 19 Apr 1994, W.N. Mathis (9 ♂, 1 ♀; USNM). *St. John*: Charlotteville (beach; 11°19.5'N, 60°32.9'W), 16–18 Apr–10–16 Jun 1993,

1994, D. and W.N. Mathis (21 ♂; USNM); Charlotteville (5 km S; 11°18.9'N, 60°34.5'W), Hermitage River and beach, 22 Apr–11 Jun 1993, 1994, D. and W.N. Mathis (9 ♂, 10 ♀; USNM); Speyside (11°18'N, 60°32'W), 13–15 Jun 1993, W.N. Mathis (6 ♂, 2 ♀; USNM). *St. Patrick*: Pigeon Point (beach; 11°9.7'N, 60°50'W), 19 Apr 1994, D. and W.N. Mathis (2 ♀; USNM). *St. Paul*: Delaford, Kings Bay (11°16'N, 60°32.8'W), 21 Apr–13 Jun 1993, 1994, D. and W.N. Mathis (17 ♂; USNM). Crown Point Hotel (light trap), Apr 1959, R. Darsie (1 ♂, 5 ♀; USNM). TRINIDAD. *St. Patrick*: Chatham (beach; 10°05'N, 61°44'W), 25 Jun 1993, W.N. Mathis (8 ♂, 1 ♀; USNM). TURKS AND CAICOS: *West Caicos*: 4 Feb 1953, E.B. Hayden, L. Giovannoli, G.B. Rabb (1 ♂, 3 ♀; USNM).

Distribution.—*Nearctic*: Bermuda, USA (AL, FL). *Neotropical*: Bahamas, Belize, Brazil Bahia, Rio de Janeiro, Rio Grande do Norte), Guyana, Mexico (QNR, YUC), Panama, Trinidad and Tobago, Turks and Caicos, West Indies (Antigua, Barbados, Barbuda, Cuba, Curaçao, Dominica, Dominican Republic, Grand Cayman, Grenada, Jamaica, St. Lucia, St. Vincent).

Remarks.—This widespread species can easily be distinguished from *T. cohiba* (often collected at the same locality) in having an obvious reddish yellow spot on the apex of the scutellum. Some specimens must be examined with the scutellum oriented to be directly viewed from behind and with good lighting. In most specimens, however, the spot is immediately obvious. Additional external characters include the mostly yellow femora, which are moderately swollen, as in *T. cohiba*.

10. *Tethina setulosa* Malloch
(Figs. 26, 28, 29)

Tethina setulosa Malloch 1934: 454.—Foster 1976b: 2 [Neotropical catalog].—Mathis and Munari 1996: 18 [world catalog].

Rhicoessa setulosa: Hennig 1937: 139 [generic combination, citation].

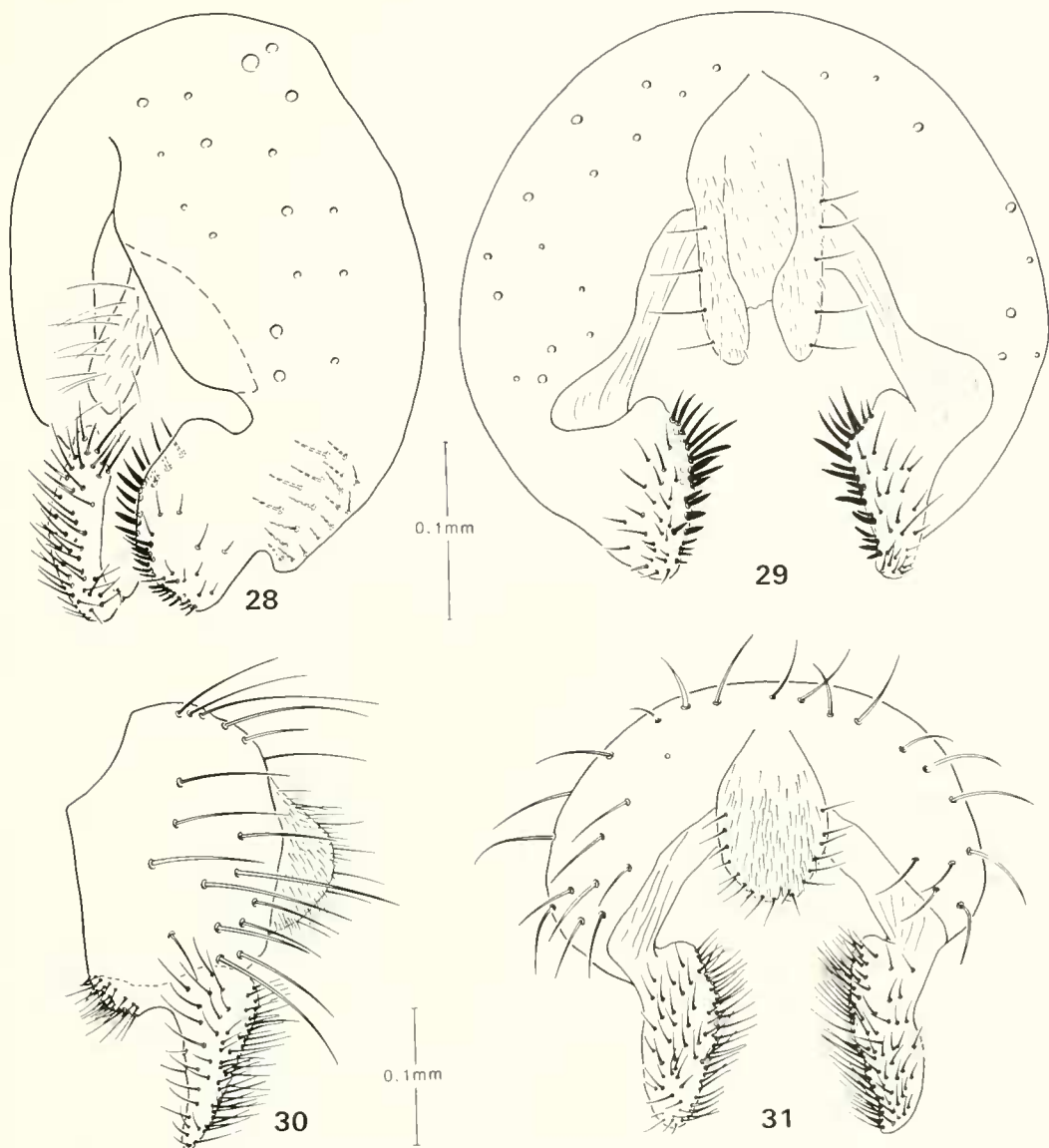
Diagnosis.—This species is distinguished from congeners by the following combination of characters: Body length 1.85–2.70 mm; body generally with gray microtomentum; setae generally black; gena short, less than 0.5 eye height; 4 somewhat irregular rows of acrostichal setulae; scutellum uniformly gray, lacking apical spot; femora mostly gray; hindfemora of male distinctly swollen, distinctly larger than fore- and midfemora; tibiae and basal 4 tarsomeres yellow, apical tarsomere brown; surstylus articulated with and broadly attached to epandrium, broadly spatulate in posterior view (Fig. 29), length about equal to width, median margin bearing dense patch of robust setulae along entire length (Fig. 29); surstylus in lateroblique view (Fig. 28) broadly rounded, constricted anteriorly, external surface bearing numerous setulae; aedeagus thin, ribbonlike.

Type material.—The holotype ♂ of *Tethina setulosa* is labeled “Angol [crossed out] Chile DSBullock/Tocopilla [Antofagasta] Ap. 10, [19] 31 Sea Beach [handwritten]/ Type No. 50448 U.S.N.M. [red; “50448” handwritten]/*Tethina setulosa* Type Det. JRMALLOCH [species name and “Type” handwritten; black submargin].” The holotype is directly pinned, is in good condition (abdomen removed and dissected, the parts are in an attached microvial), and is deposited in the USNM (50448).

Specimens examined.—*Neotropical*. CHILE. *Antofagasta*: Tocopilla, 10 Apr 1931, D.S. Bullock (1 ♂; the holotype; USNM). MEXICO. *Tabasco*: Paraíso (5 km E), 6 May 1985, A. Freidberg, W.N. Mathis (4 ♂; USNM).

Distribution.—*Neotropical*: Chile (Tara-paea to Antofagasta), Mexico (TAB).

Remarks.—This species is typically quite robust and very setose. Males have both fore- and hindfemora swollen, the hindfemora being much more swollen than the fore, however. All setae are generally very stout and well developed.



Figs. 28–31. 28–29. *Tethina setulosa*. 28, External male terminalia, lateroblique view (Mexico. Tabasco: Paraíso). 29, Same, posterior view. 30–31, *T. cohiba*. 30, External male terminalia, lateral view (Jamaica. St. Elizabeth: Port Kaiser). 31, Same, posterior view.

**11. *Tethina cohiba* Foster and Mathis,
new species**
(Figs. 27, 30, 31)

Diagnosis.—This species is distinguished from congeners by the following combination of characters: Body with gray microtomentum; setae generally black; gena short, less than 0.5 eye height; 4 somewhat

irregular rows of acrostichal setulae; scutellum uniformly gray, lacking yellowish to reddish spot; femora mostly gray; hindfemora of male usually distinctly swollen, noticeably larger than fore- and midfemora; tibiae and basal 4 tarsomeres yellow, apical tarsomere yellow; surstylus articulated with and broadly attached to epandrium, narrow-

ly spatulate in posterior view (Fig. 31), length about $2.5\times$ width, apex narrowly rounded, median margin bearing dense patch of robust setulae along entire length (Fig. 31); surstylus in lateral view (Fig. 30) becoming narrowed toward apex, apex pointed, lateral surface bearing numerous setulae, basal portion produced anteriorly as a lateral lobe that bears dense patch of setulae; aedeagus narrow, ribbonlike.

Description.—Body length 1.60–2.70 mm; body with gray, microtomentum; setae generally black.

Head (Fig. 27): All setae black except for white postgenal setulae; vertex whitish gray, microtomentose; ocellar tubercle bearing 2 proclinate setae; frons dark yellow, microtomentose; 3 interfrontal setae, proclinate and convergent; row of 6 convergent inner fronto-orbital setae; row of 4 divergent outer fronto-orbital setae; 1 convergent outer fronto-orbital seta just dorsad of antenna. Antenna dark yellow, concolorous with frons except slightly browner at base of arista; 1st flagellomere pubescent; arista brownish, sparsely pubescent. Gena short, height less than 0.5 that of eye, white, microtomentose, becoming gray posteriorly; postgena yellowish gray, with setulae white. Peristomal setae with 5 directed dorsally, 6th directed anteriorly, yellowish tubercle dorsad of anteriormost seta. Palpus yellow; labellum long, yellow.

Thorax: Generally gray, microtomentose; scutellum uniformly gray, lacking yellowish to reddish spot. Setae generally black; acrostichal setulae in 4 irregular rows; dorsocentral setae 6 (2+4); proepisternum and proepimeron each with a seta. Coxae mostly yellowish, with pale setulae except hindcoxal setae black; femora mostly light brown to yellowish, midfemur yellow; fore- and hindfemora of male swollen with hindfemur distinctly so; tibiae and basal 3 tarsomeres yellow, 4th tarsomere slightly brown, apical tarsomere brown. Wing with costa extended to vein M.

Abdomen: Coloration as for thorax; all setae and setulae black. Male terminalia

(Figs. 30–31): Surstylus articulated with and broadly attached to epandrium, narrowly spatulate in posterior view (Fig. 31), length about $2.5\times$ width, apex narrowly rounded, median margin bearing dense patch of robust setulae along entire length (Fig. 31); surstylus in lateral view (Fig. 30) becoming narrowed toward apex, apex pointed, lateral surface bearing numerous setulae, basal portion produced anteriorly as a lateral lobe that bears dense patch of setulae; aedeagus narrow, ribbonlike.

Type material.—The holotype δ is labeled "BWI. GRAND CAYMAN. George Town Harbour[,] $19^{\circ}18'N$, $81^{\circ}22.9'W$ [,] 28–29 April 1994 [,] Wayne N. Mathis/HOLOTYPES *Tethina cohiba* δ Foster and W.N. Mathis USNM [red; species name and " δ and Foster" handwritten]." The holotype is double mounted (minuten in block of plastic), is in excellent condition, and is deposited in the USNM. Other paratypes are as follows: GRAND CAYMAN, same label data as the holotype (10 δ ; USNM). Bodden Town (beach; $19^{\circ}17'N$, $81^{\circ}14.8'W$), 26 Apr 1994, W.N. Mathis (4 δ ; USNM). Breaker (1.5 km W); $19^{\circ}18'N$, $81^{\circ}10.9'W$), 29 Apr 1994, W.N. Mathis (4 δ ; USNM). Heritage Beach ($19^{\circ}18'N$, $81^{\circ}9.8'W$), 28 Apr 1994, W.N. Mathis (1 δ ; USNM).

Other specimens examined.—Neotropical. ANGUILLA. Blowing Point ($18^{\circ}10.5'N$, $63^{\circ}5.8'W$), 29 Mar 1992, W.E. Steiner, J.M. Swearingen (2 δ , 4 η ; USNM). Sandy Ground ($18^{\circ}12.3'N$, $63^{\circ}05.5'W$), 27 Mar 1992, W.E. Steiner, J.M. Swearingen (3 δ ; USNM). ANTIGUA. Dutchman Bay, 7 Jan 1965, W.W. Wirth (7 δ , 1 η ; USNM). near airport, 19 Mar 1989, A. Freidberg, W.N. Mathis (4 δ , 1 η ; USNM). BAHAMAS. *Abaco Cays*: Great Sale Cay, 10 May 1953, L. Giovannoli, G.B. Rabb (3 δ , 3 η ; USNM). *Eleuthera Island*: James Citerm, 1 Apr 1953, E.B. Hayden, L. Giovannoli (1 δ ; USNM). *Exuma Cays*: Leaf Cay of Allens Cay, 7 Jan 1953, E.B. Hayden, L. Giovannoli (1 δ ; USNM). *New Providence Island*: Nassau, 16 Apr 1953, E.B. Hayden (1 η ; USNM). *North Bimini*: Alicetown, 30

Dec 1952, L. Giovannoli (3 ♀; USNM). BELIZE. *Stann Creek*: Coco Plum Cay, 24 Jun 1990, C. Feller, H.B. Williams (2 ♂; USNM). Dangriga (16°58'N, 88°13'W), 3–4 Apr 1993, W.N. Mathis (1 ♂; USNM). CUBA. *Havana*: Jibacoa Beach (57 km E Havana), 26 Apr 1983, W.N. Mathis (7 ♂, 2 ♀; USNM). *Matanzas*: Playa Larga (1 km E), 2 May 1983, W.N. Mathis (3 ♂, 2 ♀; USNM). DOMINICA. Calibishie (sea-shore), 27 Feb 1965, W.W. Wirth (1 ♀; USNM). Clarke Hall, 11–20 Jan 1965, W.W. Wirth (1 ♂; USNM). Pagua Bay, 18 Feb 1965, W.W. Wirth (2 ♂; USNM). St. David Bay (sea shore), 23 Jan 1965, W.W. Wirth (1 ♂, 1 ♀; USNM). Woodford Hill, 27 Feb 1965, W.W. Wirth (2 ♂, 1 ♀; USNM). DOMINICAN REPUBLIC. *La Altagracia*: Bayahibe (18°22.3'N, 68°50.4'W), 13 May 1994, W.N. Mathis (1 ♂; USNM). *Monte Cristi*: Monte Cristi (beach: 19°51.5'N, 71°39.5'W), 18 May 1995, W.N. Mathis (2 ♂; USNM). *San Pedro de Macoris*: Playa Juan Dolio, 16 Nov 1984, R. Faitoute, P.S. Spangler (5 ♂, 2 ♀; USNM). GRENADA. *St. George*: Beauséjour Bay (12°05.5'N, 61°44.9'W), 21 Sep 1996, W.N. Mathis (2 ♂; USNM). JAMAICA. *Clarendon*: Jackson Bay (17°44.7'N, 77°12.6'W), 13 May 1996, D. and W.N. Mathis, H. Williams (1 ♂; USNM). *Manchester*: Alligator Pond (17°52.1'N, 77°33.9'W), 8 May 1996, D. and W.N. Mathis, H. Williams (9 ♂; USNM). *St. Elizabeth*: Black River (18°01.4'N, 77°51.1'W), 11 May 1996, D. and W.N. Mathis, H. Williams (1 ♂; USNM). *St. Elizabeth*: Port Kaiser (17°51.9'N, 77°35.7'W), 8 May 1996, D. and W.N. Mathis, H. Williams (6 ♂; USNM). *St. Thomas*: Rozelle (17°52.3'N, 76°27.7'W), 14 May 1996, D. and W.N. Mathis, H. Williams (2 ♂; USNM). *Trelawny*: Falmouth (bay shore), 1 Mar 1969, W.W. Wirth (10 ♂; USNM). *Westmoreland*: Negril (S beach: 18°67.7'N, 78°21.4'W), 11 May 1996, D. and W.N. Mathis, H. Williams (1 ♂; USNM); Negril Beach (mangrove, rocky shore), 12 Mar 1970, W.W. Wirth (1 ♂; USNM). MEXICO. *Quintana Roo*: Can-

cun Island, 25 Mar–29 Oct 1974, 1975, D.J. Pletsch (5 ♂, 1 ♀; USNM). *Tabasco*: Paraiso, 6 May 1985, A. Freidberg, W.N. Mathis (6 ♂; USNM). PANAMA. *Jacque River*, 26 Jul 1952, F.S. Blanton (1 ♂; USNM). PUERTO RICO. Cayo Abogado, 8 Sep 1967, Heatwole (1 ♂; USNM). Fajardo, Las Croabas (Seven Seas Beach: 18°23'N, 65°37'W), 17 Feb 1996, W.E. Steiner, J.M. Swearingen (95 ♂, 22 ♀; USNM). Naguabo, Playa de Naguabo (18°11'N, 65°43'W), 17 Feb 1996, W.E. Steiner, J.M. Swearingen (10 ♀; USNM). TOBAGO. *St. David*: Plymouth (beach: 11°13.2'N, 60°46.7'W), 19 Apr 1994, W.N. Mathis (2 ♂; USNM). *St. John*: Charlotteville (5 km S: 11°18.9'N, 60°34.5'W), Hermitage River and beach, 22 Apr–11 Jun 1993, 1994, D. and W.N. Mathis (3 ♂; USNM). TRINIDAD. *St. Patrick*: Chatham (beach: 10°05'N, 61°44'W), 25 Jun 1993, W.N. Mathis (7 ♂, 3 ♀; USNM). TURKS AND CAICOS. *West Caicos*: 4 Feb 1953, E.B. Hayden, L. Giovannoli (1 ♂; USNM). VIRGIN ISLANDS. *St. John*: Francis Bay, 25 Mar 1958, J.F.G. Clarke (1 ♀; USNM).

Distribution.—*Neotropical*: Bahamas, Belize, Mexico (QNR), Panama, Trinidad and Tobago, West Indies (Anguilla, Antigua, Cuba, Dominica, Dominican Republic, Grand Cayman, Grenada, Jamaica, Puerto Rico).

Remarks.—This species is distinguished externally from *T. xanthopoda* by the entirely grayish hindfemur, which is often quite swollen in the male. The degree of enlargement, however, varies, especially in less robust specimens. Additionally, the femora, after drying, are often collapsed laterally and therefore flattened, making it difficult to discern if they are swollen. The apex of the scutellum is always clearly gray microtomentose without a reddish yellow spot. The male terminalia (Figs. 30, 31) are obviously quite different and easily distinguish between the species.

Etymology.—The specific epithet, *cohiba*, recognizes the first author's preference in cigars from Cuba, the island from which

specimens of this species were first identified. Males of *T. cohiba* have swollen hindfemora, reminiscent of cigars.

12. *Tethina albitarsa* Foster and Mathis,
new species
(Figs. 32–34)

Diagnosis.—This species is distinguished from congeners by the following combination of characters: Body with gray microtomentum, thorax brownish dorsally, becoming light gray laterally; setae generally black except for peristomal setulae; gena short, less than 0.5 eye height; 4 irregular rows of acrostichal setulae; scutellum uniformly gray, lacking yellowish to reddish spot; forefemora distinctly gray; mid- and hindfemora yellow at base, otherwise gray; fore- and hindfemora of male distinctly swollen, distinctly larger than midfemora, with hindfemora distinctly larger than forefemora; forefemur with straight row of short setae on apical third of anteroventral surface; mid- and hindtibiae black on apical $\frac{1}{4}$ – $\frac{1}{3}$, basal 3 tarsomeres whitish, appearing velvety ventrally; foretibia with patch of fine setulae on apical half of posterior surface, appearing velvety; surstylus articulated with and broadly attached to epandrium, in posterior view (Fig. 34) quite broadly spatulate, length about 2× width, apex rounded, median margin bearing patch of stout setulae along apical half, dorsolateral surface of surstylus bearing scattered setulae; surstylus in lateral view (Fig. 33) long and narrow, height 3.5× width, apex narrowly rounded; aedeagus thin, ribbonlike.

Description.—Body length 2.30–3.70 mm; body with gray microtomentum, thorax brownish dorsally, becoming light gray laterally; setae generally black except for peristomal setulae;

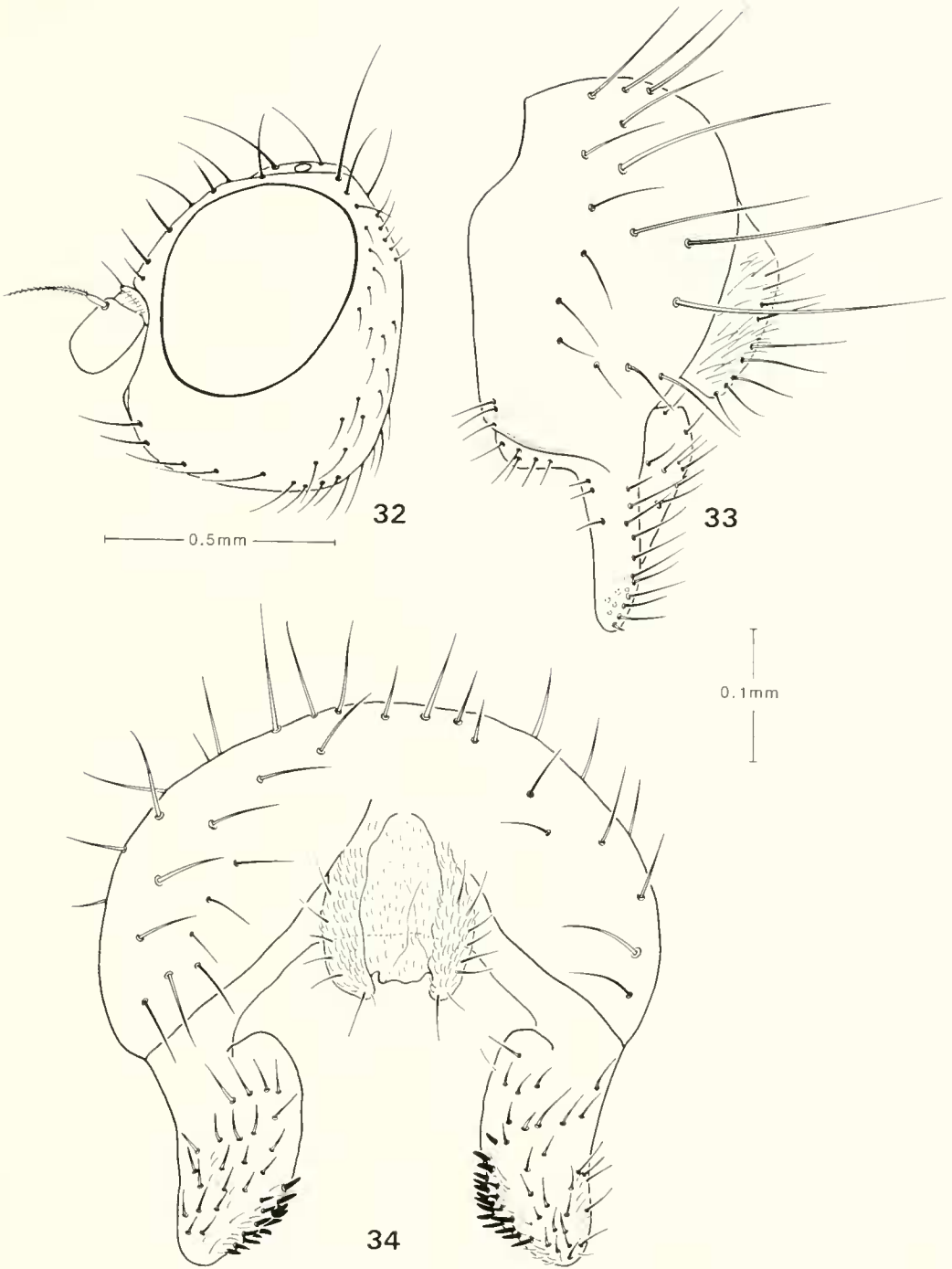
Head (Fig. 32): All setae black. Vertex dark gray, microtomentose; ocellar tubercle bearing 1 ocellar seta and 2 shorter setulae; postocellar seta 1; frons yellow; interfrontal setae 3, proclinate; fronto-orbital setae as 1 row of median, short, proclinate setulae and 4 divergent, lateral setae. Antenna with

scape and pedicel yellow; 1st flagellomere brownish; arista brown, sparsely pubescent. Face white; facial tubercle yellow; peristomal setae as 6 dorsally directed setae, pale; 1 false oral vibrissal seta, pale. Gena short, less than 0.5 eye height, white, microtomentose; postgena gray with pale setae. Palpus white; labellum long, yellow.

Thorax: Scutum generally brownish, microtomentose, coloration extended ventrad to middle of anepisternum, thereafter gray, microtomentose; scutellum lacking yellowish to reddish spot. Acrostichal setulae in 4 irregular rows; dorsocentral setae 6 (2+4); proepisternum and proepimeron each bearing 1 pale yellow seta (all other thoracic setae black). Coxae yellow, all setae pale; forefemora distinctly gray, mid- and hindfemora yellow at extreme base, otherwise gray; forefemur bearing row of 10 short setulae along distal third of anteroventral margin; fore- and hindfemora of male somewhat swollen, larger than midfemora, with hindfemora distinctly larger than forefemur; femora of female not swollen; femoral setae generally black except for a few ventral, pale setae; mid- and hindtibiae brown on apical $\frac{1}{4}$ – $\frac{1}{3}$, otherwise yellow; foretibia with patch of fine setulae on apical half of posterior surface, appearing velvety; basal 3 tarsomeres whitish to pale yellow; distal 2 tarsomeres brown.

Abdomen: All setae and setulae black; distal margins of segments white, remainder brown to nearly black. Male terminalia (Figs. 33, 34): Surstylus articulated with and broadly attached to epandrium, in posterior view quite broadly spatulate, length about 2× width, apex rounded, median margin bearing patch of stout setulae along apical half, dorsolateral surface of surstylus bearing scattered setulae; surstylus in lateral view (Fig. 33) long and narrow, height 3.5× width, apex narrowly rounded; aedeagus thin, ribbonlike.

Type material.—The holotype ♂ is labeled "ECUADOR: Manabi Pr. Bahia[,] 10 Jan 1978[,] Wayne N. Mathis/HOLOTYPED ♂ *Tethina albitarsa* Foster and W.N. Mathis



Figs. 32-34. *Tethina albitarsa*. 32, Head, lateral view. 33, External male terminalia, lateral view (Panama, Jacque River). 34, Same, posterior view.

USNM [red; "♂", species name, and "and Foster" handwritten]. The holotype is double mounted (minuten in block of plastic), is in excellent condition, and is deposited in the USNM. Other paratypes are as follows: same label data as the holotype (15 ♂, 14 ♀; USNM).

Other specimens examined.—Neotropical. PANAMA. *Canal Zone*: Mojinga Swamp, Ft. Sherman, 13 Jan 1953, F.S. Blanton (2 ♀; USNM). *Darien*: Garachine, Feb 1953, F.S. Blanton (1 ♀; USNM). Jacque River, 20–26 Jul 1952, F.S. Blanton (3 ♂, 15 ♀; USNM).

Distribution.—*Neotropical*: Ecuador, Panama.

Etymology.—The specific epithet, *albirtarsa*, refers to the white basal three tarsomeres of each leg.

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- AMNH American Museum of Natural History, New York, New York (Dr. David A. Grimaldi)
- BMNH The Natural History Museum (formerly the British Museum (Natural History)), London, England (Dr. Brian Pitkin and Mr. John Chai-ney)
- CNC Canadian National Collection, Ottawa, Canada (Dr. James E. O'Hara and Mr. Bruce Cooper)
- MZSP Museu de Zoologia da Universi-

dade de São Paulo, São Paulo, Brazil (Dr. Francisca C. do Val)

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